

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1723.—VOL. XXXVIII.

London, Saturday, August 29, 1868.

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## Original Correspondence.

## EMIGRATION—WHERE TO GO.

SIR.—Before taking up the promised review of the countries between which the intending emigrant has to decide, I must briefly notice the papers and discussions bearing on the labour question in the British Association meeting at Norwich. The Rev. Canon Girdlestone well deserves the respect and sympathy of every right-minded Englishman for his fearless outspoken advocacy of the claims of the agricultural labourer to better treatment than he receives at present. If the teaching of Christ and His Apostles has any meaning, surely this firm, unwearied defence and support of the poor, desolate, and oppressed is the holiest fulfilment of the highest duties of a Christian minister. Careless whom he may offend, the Rev. Canon tells the truth loudly and boldly. He proves by figures how the labourer is ground to the earth by his employers, toiling his life's strength out for wages which cannot afford him more than an insufficient supply of the worst food, wholly unable to have a single penny in reserve for sickness or emergency, and driven to the parish the very day he ceases to receive his insufficient dole for work, there to have all trace of independence stamped out of him by the brutal regulations of that abode of misery. Nor is he often better lodged or cared for than the cattle on the farmer's land; his whole family crowded into a wretched hovel, with no space for the decencies of home life; and unable in his abject poverty to educate his children beyond the little they learn at the Sunday School, too frequently but half understood, and soon forgotten in the "rigour of the bondage" wherewith they serve. Nor has the Rev. Canon been content with denouncing this state of things. His active, benevolent help has organised a system of migration from places where the labourer is worst off to the neighbourhood of manufacturing districts, where the farmers give something like decent wages. The wrath stirred up against him for this Christian conduct is something pitiable and mournful to think of. Tenants and landowners have almost with one accord risen against him, as if he had done each a personal injury by helping his workpeople to better terms of employment. But, if I mistake not, the Canon is not the man to be scared one hair's breadth from his path of duty by this unseemly uproar. All he says of the dead, hopeless apathy of the agricultural labourer is true to the letter, and demands careful attention. Nor are his recommendations of Agricultural Trades Unions, of an organised system of migration, of improved dwellings providing for health and decency, and of that education without which the ploughman is little better than the ox on horse he drives, less thoughtfully sagacious, or less worthy of being well pondered over. I am glad to see a committee is appointed to consider and report upon the subject, and trust the Canon will keep his hand to the work until some real reform is effected where it is so sorely needed.

I am reminded, in thinking over the first things an Agricultural Union should care for, to supplement the few words I said about co-operation by the remark that nothing but good can arise to the workman from substituting cash purchases at a co-operative store for the old credit system of the shops, for which, in many ways, he paid a hundredfold. This is a very different matter from setting up a co-operative trade or manufacture to rival his master, which, as I have remarked, is open to many chances of failure, and when successful is of little or no effect in bettering the relative conditions of men and masters. But the co-operative store should supply him cheap and unadulterated food and necessities, saving his pocket and health, with a most beneficial change as to prudent habits of living.

I see, also, a very interesting discussion as to the whole poor-law system at this Norwich meeting. Something must be done to put down and extirpate the regular rogue and tramp, who makes living in idleness upon the parish his regular profession, before he wholly swallows up the subsistence provided for the really deserving and unfortunate at the public charge. I think the system of making the poor-house such a den of misery as, it is hoped, he never can face or endure has proved a failure. The weight of the hardship and discomfort has fallen with cruel injustice on the unfortunate poor, for whom the poor-house is really intended, and the lazy miscreant escapes, or is not deterred by the worst suffering, and flourishes in spite of it. In place, then, of what fails to reform the abuse, and in many ways works evil, it is time the weight of penalty should be directed against the irreclaimable vagrant, as an offender of, perhaps, the worst kind. In this, as in some other cases, sentimental theories of common law, drawn too fine, enable many to escape who are far more deserving of punishment than many treated by the law as criminals. This is one of many similar matters which, we may hope, the working man's element in the reformed Parliament will grapple with, showing vigour and decision in removal or mitigation of the evil.

Returning to emigration, taken up with relation to the country chosen, we may well bear in mind the distinction before drawn between the emigrant going abroad for better wages in his regular employment and he who intends to start afresh, taking up whatever kind of work he can find which offers him the best future prospects. This difference, as has been remarked, to some extent controls his choice of his new country. Another broader line may now be drawn between different lands—those that are so wholly foreign that the settler is entirely alien in language, customs, and religion to the inhabitants of the land; and those where he finds the Anglo-Saxon element as much the ruling power as in the native country he left, with little more change of manners, speech, or customs than may be found in migrating from one end of our island to the other. The former is the case in which the hardship of emigration is most severely felt, and the attendant drawbacks upon the prospects it holds out are the greatest. Few contemplate a residence in such a state of isolation as a permanency, but look forward to a return to their native land after a period of exile. In the case of families these feelings are enhanced by anxiety as to the future of the children, where all chance of education, religious or other, even the very preservation of language and nationality, wholly depend on home influences; and even where the settler is in some degree competent to supply, as far as he can, the want of school teaching, this addition to his many other cares and toils is a severe burthen. These evils are in some degree mitigated where settlers are not scattered over the face of the country, but are in sufficient numbers to form a sort of colony by themselves. Many parts of South America, apart from these drawbacks, afford, from the fertility of the soil, and easy terms on which land may be secured, prospects of speedily acquiring wealth in a well-chosen location. But, except in the Brazils, more or less unsettlement, rendering life and property insecure, prevails over the whole Continent; and, where the frontiers of civilization prevail over the native populations, their wild savagery is added to the dangers of semi-political banditti. These evils culminate in Mexico—settlement in which may be classed by sane men with the cultivation of a farm on the crater of a volcano. Again, the dangers of malaria, and all the diseases of a tropical rainy season, have to be counted against many localities. Unless he can be helped by some kind countryman, the position of an emigrant stretched in a foreign land upon a bed of sickness is truly desolate. Therefore, when all the expenses of reaching these countries are computed, great as may seem the temptation in some instances, the prudent emigrant will not hazard the venture, but turn to other lands, unless he is taken out by some fixed engagement, in which he has good reason to rely, on satisfactory terms.

Of the countries where English is the prevailing language, and where the institutions and laws of the land are almost identical with our own, all deserving notice, are our colonies under British rule, with the exception of the United States, which from their importance, and the various circumstances of different parts of their immense territory, demand first and special notice. So rapid has been their growth in wealth and population in the last half-century that what was the New World rivals the Old in many of the cities and densely inhabited manufacturing districts. We have before noticed some of the drawbacks on the inducement this condition of things holds out to those seeking better wages abroad in their own special employment, and will now cast a rapid glance over some of the advantages of the country as a resort for the settler starting life afresh. The passage money from the British shores is very light in comparison with that to most other centres of emigration. Fertile land is granted in the Far West on such easy terms that but little money is needed by those who have decided where to go, and push on at once

to the place of destination, not wasting their money by trifling in the port of embarkation. Those who are thrifty and industrious, and have had the good sense to choose a healthy location, being, moreover, what the Yankees call "smart" enough to make the most of everything that turns up, can hardly miss attaining competence, if not opulence, before many years have passed. But the settlers should be aware that many of the most tempting tracts are so scourged by malaria, fever, and ague as to be little better than a certain grave to nine out of ten coming from a temperate climate. Again, there are, as I before remarked, rocks ahead in the future, which may cripple or destroy the former advantages possessed by the country in the race for wealth. They are loaded far more heavily by taxation than ourselves, comparing their capital and resources with ours. They have recently taken up, and seem determined to push to its worst consequences, the burdensome system of protection, from the abandonment of which our country dates its renewed lease of national prosperity. They have an unsound, inflated system of paper currency—unstable under any pressure of trial, and liable in any crisis to collapse like a pricked bladder, perchance when least expected, with some of the worst results of national bankruptcy. And to crown all, political corruption, and the strife of extreme parties, so strain a Government, weak in its radical forms of construction, that whilst all manner of foolish extreme things are done, reckless of consequences, it seems next to impossible to pass any measures for the public good. Every abuse has its defenders; every question is taken up on its bearings upon the balance of parties, and intrigue takes every form, risks all, and does all to carry its point for the day, wholly careless of the future. There are, therefore, many reasons why a prudent man would stand aloof for awhile at least, and not risk all his future in such troubled waters.

Of all our colonies the only ones likely to attract much emigration are Canada and the Australian group, in which we may include New Zealand. Canada is as cheaply reached as the United States, and is, moreover, almost as English as one of our own counties. Hitherto the progress of the country, though steady and progressive, has been very slow compared with that of the United States, and many of the facilities offered to the settler in grants of land at a nominal price have been almost, if not wholly, neutralised by the *red tapism* which would not survey the chosen territory, or make out a title for the settler, until half-ruined and worn out by the delay he gave up the matter in despair. The long winter is, moreover, a great hindrance to the prosperity of this fine country. But the climate is healthy, and I believe most, if not all, of the obstructions above noticed have been removed. The very existence of a free-trade land with low tariffs close to such a hotbed of protection and monopolies as the United States, renders a rapid increase of wealth and prosperity at the expense of the heavily-weighted rivals in trade and agriculture all but a certainty. Accordingly we find the progress of Canada since the troubles of the United States much accelerated, with every good prospect in the future. For a settlement—especially in such a community as we before noticed, in a well-chosen locality, under the guidance of one knowing the country well—Canada just now holds out very encouraging prospects.

The great drawbacks on emigration to our Australian colonies are the heavy passage money, and capital required to work upon to found a fortune. Where these can be secured under the advice and leading of an old experienced settler, building up a fortune may almost be said to be a certainty, and is merely the work of time. For working men, assisted passages, and employment as shepherds and agricultural labourers, at very sufficient wages, may, in most cases, be secured by application to the proper emigrant societies. About gold digging and mining we purposely say nothing. Emigration for these purposes (save on an engagement well secured on satisfactory terms) is a mere venture. Some win—more lose; each speaks of different places as he found them; and changes from riches to poverty, and *vice versa*, in localities as well as with the miners themselves, follow one another almost as rapidly as the slides in a magic lantern.

London, Aug. 28. — A MAN OF EXPERIENCE.

## IRON-MAKING—THE SLAGGING SYSTEM.

SIR.—In last week's Journal an account is given of "Lurmann's Slagging System," as if such a system, or one similar, had not been in operation in this country. I beg to inform you that a furnace has been working here for upwards of four months on the closed mouth system, and was built and in operation before Lurmann's furnace was heard of in this country. The furnace is different from Lurmann's, in so far that the dam and tympan are not dispensed with. The slag flows over the dam much in the usual way, and the furnace can be worked with bars, if at any time such should be necessary. Few men having a knowledge of smelting would run the risk of having no mouth in a blast-furnace, as in Lurmann's furnace.

HAMILTON MACVICAR.

Monkland Iron and Steel Works, by Airdrie, Aug. 27.

## UTILISATION OF REFUSE COAL AS A MANURE.

SIR.—Your readiness to promote all useful discoveries induces me to hope you will give this a place in next week's Journal. The subject is that of the utilisation of small refuse coal as a manure. All geologists agree that coal is a vegetable; and as it has long been proved that charcoal is an excellent fertiliser, it is surprising that coal should not have been tried as such long ere this, particularly as it is so difficult to procure sufficient manure for the purposes of agriculture. The writer finds that with the addition of a cheap chemical, costing only 5s. to make 1 ton, an excellent manure can be produced, 10 tons of which to the acre will give good results on stiff soils, and produce large crops of wheat and other cereals. The present time is suitable for a trial, as the land is being prepared for sowing wheat, and as abundance of materials are lying waste, it behoves proprietors to try and find how much it will be to their advantage. Should this induce enquiries, I will send you further particulars shortly.

Aug. 27. — R. A.

## IMPROVED SAFETY-LAMPS.

SIR.—I have carefully read the description of Messrs. Hann and Son's safety-lamp, as published in last week's Journal, but quite fail to see that practically it possesses any material advantage (without the horizontal gauze, which it is proposed to abandon) over those at present in use. Of course, the horizontal gauze and the mode of admitting the air to it would prevent explosion whilst the lamp remained in perfect order, but I fear it would much complicate the lamp, and render it much more liable to derangement. The object of the arrangement is evidently to permit of the escape of a large portion of the air through the orifices in the rim, opposite the current, in case of a high velocity being attained; but this was done years since in the lamps made for use in sewers by Messrs. Wilkins, of Long Acre, London. But if the sole object be to prevent the full current of air rushing upon the flame, it will be best attained by admitting the main body of air to support combustion from the top of the lamp, as is now done with the Stephenson, which for all practical purposes is an absolutely safe lamp. Whatever may be the object, however, this is not the sole effect of the horizontal gauze, and it seems to me that in the notice of Messrs. Hann's lamp the great point in its favour has been altogether overlooked.

Messrs. Hann are careful, judging from the engravings given, to protect the vertical orifices with gauze, but this I think they will find to be a mistake—they had better be left entirely open, and if double gauze be needed at all let both be horizontal. The top of the lamp should fit well upon the oil-chamber, and I am convinced that it will then be found that the higher the glass or metal be carried within the gauze, the safer will be the lamp. Perhaps Messrs. Hann would state whether, at high velocities, the flame did not rather shorten than otherwise. I think it would; for in a strong current there would be a suck from the rim orifices on the side opposite the wind, which would, I think, more than compensate for any additional wind that could possibly enter on the other side. It is, in my opinion, this sucking current that gives Messrs. Hann's lamp its great safety. The advantage of a horizontal gauze must be obvious to all—the wind never blows directly through it, consequently there is no tendency for the gauze to heat. In an ordinary Davy lamp, the air and fire-damp blowing together upon the gauze really damages it almost as much as a gas blow-pipe, but it appears to me that the use of horizontal

instead of vertical gauze, as the protector, entirely removes the danger.—Durham, Aug. 24.

D. F. J.

## MINING IN MEXICO—No. III.

SIR.—Under this heading in the Journal of Aug. 15, in the report of your Mexican correspondent, there is an error of so much commercial importance that I cannot allow it to pass unnoticed. The statement is highly laudatory of a boiler and engine recently started at the Capula Silver Mines, which are situated in a mountainous district, without roads suitable for the conveyance of mining machinery. The boiler is, in fact, one of my patent combination safety-boilers, of 30-horse power. It is composed of 30 lap-welded tubes, sent out in parts weighing 3 cwt., and having other special advantages both for conveyance and economy of working power. The engine is a double-acting horizontal, of massive proportions, made portable by division of bed, fly-wheel, &c. It is fitted with expansion gear, to ensure economy of fuel under all conditions of load, and is otherwise carefully adapted for difficult mining stations.

The error which I beg the favour of your correcting, by giving a place to this letter, is that this acknowledged success is attributed to Howard's patent boiler, instead of which it should be Jordan's patent boiler, already favourably noticed in the *Mining Journal*.

Aug. 23.

THOS. B. JORDAN.

## MINERAL PROPERTIES—THEIR VALUE—No. VII.

SIR.—In my last I pointed out the different kinds of value mineral properties possess. It is very clear that mineral properties are bought and sold without there being any very clear principle in the valuation. The system on which unprincipled promoters have acted during past years is to get as much money paid down as possible. This is evidently a very great mistake on the part of the purchaser, to commence with, unless there has been work actually done that will be beneficial to the future profitable working of the property. Let me try to illustrate the principle of different values of mineral property in a practical way. We have a lead mine which has been at work for years, and is paying profit at the present time. The proprietors want to sell it, and the question is—How much is the property worth? What is its marketable value? It is clear the mine would have two values—the present and the prospective value. The present value would be in proportion to the plant on the mine, and the reserves actually standing. The engine-shaft, let us say, has been sunk 100 fms., cross-cuts driven to intersect the lode, and levels driven on each side of the intersecting point, on the course of the lode, for 100 fms.—the levels being 15 fms. apart in depth, and the adit level 25 fms. deep. This would give us five levels below the adit level. Again, let us suppose the levels driven for 100 fms. both ways on the course of the lode were found to contain on an average 30 cwt. to the fathom. It is an easy matter to calculate how many tons of lead would be obtained from this quantity of ground. Let us take it from the adit level. Then we have 75 fms. in depth, and 200 fms. in length, or 15,000 fms. of ground, which will produce 22,500 tons of lead actually laid open, and known to be there, waiting only to be extracted to be turned into money. The average cost of extracting the lead, after paying rents, wages, and every other necessary expense, has been found to be 6d. per ton, and the lead is selling at 12d. per ton. Here it may be observed that if the price of the metal produced be high at the time the chances of a drop must be calculated on, and if they be low the chances of a rise must be calculated on, because the metal market does not often stand very high or low for any great length of time—at all events, not so long as the quantity of ground we are supposing could be extracted by any ordinary means; therefore, the average of the market for the time past equal to the time it would be proposed to extract the supposed ground in should be taken. In this case let it be 12d. per ton. Here we have 22,500 tons of lead that can be extracted, so as to give 6d. per ton, or 135,000d. clear profit. Then, of course, if it will pay 135,000d. clear profit, it is worth that sum to a purchaser. No, not quite that sum, which moment's consideration will show. If a purchaser gave that sum for the property, and if all the lead could be extracted in ten years, then at the end of that time he would just get his money back; but what is to become of the interest of the purchase-money for the ten years? If he bought land he would get (say) 4 per cent., and the land would be at its full value at the end of ten years; therefore, the question is—How much principal at 4 per cent. would amount to 135,000d. in ten years? This would be 104,651L 3s. 3d., the marketable present value of the property. But it has also a prospective value, and this is much more difficult to determine than its actual present value. At the ends of all the levels the lead is as abundant as anywhere, and the question is—What value should be obtained for the lead that can be produced beyond the points that have been laid open? Now we get into difficulties, because no one can tell how far the lode may continue its productiveness, or how soon it may be intercepted by some metal-destroying agency, and be rendered comparatively worthless. The lode may be traced for a great length at surface, and have every appearance of being productive down below, and yet not be so. I well remember at the Melin Llyn-y-pair Lead Mine, which my father was largely interested in, and worked about twenty years ago, that at one point the lode was particularly good, and, as it was traceable at surface for a good length, and appeared the same all through, a good run of lead was calculated on; but a different stratum came in after a few fathoms were driven, and that was convulsed, and the lode disintegrated to a large extent. It was not to be observed at surface, so no one could calculate on it. Sometimes slips, heaves, and saddlebacks, or the like, come to surface, and they can easily be traced; but this is not always the case. Therefore, the value of lead or any other metal that is not actually driven through should be made dependent on how it turns out—i.e., the sellers of the mine in question should be paid for their prospective value a certain percentage of the profits obtained beyond the points opened out at the time of sale; or, if the selling parties should wish to be paid down in cash for the prospective value, I can conceive no other method than to take the average length and depth at which lead mines have been profitably worked, leaving always a reasonable margin for chances, and then to calculate the value according to the mode of calculating the present value. However, it is not often that mines of the sort we have been supposing are sold in their entirety; but the very best paying mines, such as Devon Great Consols, frequently change hands in small quantities, and it is necessary that a common sense and sound principle should be applied to the buying and selling of a small share as to the whole concern; therefore, in buying shares in a profitable mine as an investment the purchaser should ascertain the following facts:—

1.—What is the computed value of the ground actually laid open, and known to contain ore?

2.—What is the average length and depth that mines of this sort have been found to be productive?

3.—How much must be paid per share so as to get the principal back and (say) 5 per cent. interest at the end of the time the mine may be calculated to be exhausted?

Having obtained these facts, the purchaser is comparatively safe. I know the principle by which mining shares are bought and sold is to pay as much per share as will give about 5 per cent. at the present rate of paying profits, and this principle is safe enough, provided the reserves can be calculated to last from fifteen to sixteen years, because then the purchaser would get his money in great part back, while the prospective value—if the mine were not very far exhausted—would make up the rest of the purchase-money together with the interest. The worth of plant must, of course, always be calculated in the above valuation. But there are many mines that have no reserves, and pay no dividends—how are we to value them? This, again, is a very intricate question, because shares are constantly changing hands in this kind of property. The value of these will vary greatly, according to the prospects, the geological situation, and the nature of the lode or lodes that are worked. If the lode has been profitably worked at another part there is all the better chance of it paying, and the price will be accordingly higher; but this class of mines, unless they are far developed, and their prospects good, have but little present value. Theirs is mostly a prospective value, and the question is—How can it be ascertained? If there is plant on the concern, the value of that can be easily ascertained, and many concerns are not worth more than the mere value of the plant. They are the lowest class of mines—places that do not contain any element

of success. With places like these no one would wish to be connected; but there are, doubtless, several mineral properties that do not pay at present, but have very promising prospects for the future. If any clear principle could be laid down as to the buying and selling of properties, or parts of properties, like these it would be a great boon. As there are so many different grades of non-paying mineral properties, from the utterly worthless to properties that have a great many chances of success, it would be difficult to value every property by the same standard. One thing is clear—that the money spent on any property is no criterion of its present or prospective value. Let anyone look over the columns of non-dividend paying mines published in the *Mining Journal* every week, and he will see there three kinds of properties, *viz.*—

1.—Those whose selling price is not quoted. This is because no shares have been sold that week, or because they have no marketable value.

2.—Mines whose shares are selling at a discount—the discount varies greatly, some one tenth, one-eighth, one-fourth, one-half, &c., of the cost price.

3.—Mines that are selling at a premium.

I have noticed for years that the second class are by far the most numerous, and have often asked the question—By what principle were these valued? Another thing is pretty clear, that the value of properties like these is chiefly prospective—*i.e.*, the seller ought to be paid according as the property will turn out in the future. But if the seller wants to be paid at present, how are we to reduce the prospective value to present value? This cannot be done accurately, because success is never absolutely certain in mineral properties until it is attained; but the buyer may be greatly assisted in the matter by ascertaining facts like the following:—

1.—What is the present produce of metal in the different parts of the mine? Every mine agent ought to know this pretty nearly. And what relation does the selling price of the metal bear to the cost of production?

2.—What is the average number of mines that have paid in the same stratification, and under the same circumstances, as the one in question?

3.—What are the points that remain to be proved—such as the junction with other lodes, &c., and how have points like these turned out in other mines similarly situated?

I cannot see any other mode of valuing mineral property than by taking a fair average of the mines which have paid under similar circumstances, or that they should be valued according to their chances of success. Let us suppose that one mine in five pays. Then, if a person buys one mine, his chance of success is one to five; if he buys two mines, his chances of success are two to five, and so on.

In my next I will notice the mode of valuing collieries and slate quarries.

SAMUEL JENKINS.

#### REFORM IN MINING.

##### CERTIFICATES TO MINING CAPTAINS.

SIR.—If any of your correspondents on this subject would direct their attention to the first and most important point of all—the practical development of the mines themselves, and to the class of men who, in many instances, are entrusted with the sole supervision and direction of the underground workings, and concentrate observation upon a few of the many “bal cap’ns,” it would be found that the majority are a proud, conceited, lamentably ignorant set of men, no more fit to direct underground operations, among the intricate and capricious bearings of the many lodes, cross-courses, slides, flookans, &c., always to be found in every mine, than they are to complete a work of art for the Royal Academy.

Cap’ns, or agents, are chosen, and properly so, from among the working miners; but what is the necessary qualification? Frequently none at all, beyond the interest of an old comrade, who has had the luck to be “put in cap’n” previously. The general plan is to choose a man who has worked both on tutwork and tribute, who has assisted in sinking shafts, and afterwards become pit or timber man. What does this man know about the systematic plan of working for the full exposition of the mineral veins contained in a tract of land, or what can he tell you of the probabilities of finding mineral treasure in a new field? What does he know of the geological construction of any rock, of the component parts of any mineral, or of the qualities of lodes? Or what does he know even of the rudiments of the use of the dial and quadrant, beyond having held the chain for some “Cap’n Will,” who dials periodically for several mines? and who, let me tell you, is very conceited and mysterious over his business, never for a moment sacrificing his dignity and knowledge to the enlightenment of an assistant.

The newly-chosen captain or agent is, in all probability, sent into an entirely new district, perhaps in a totally different part of the country, to work for a different mineral, in a different stratum; and to this man is left the entire management, control, and responsibility of opening a new mine, fixing the site of water or steam engines, laying out dressing-floors, &c., and conducting the operations of a company. For the first two or three years all is promise and expectancy. (Who, in his native brogue, can speak more glibly, or hold out more signs of immediate or early success, than your Cornish agent of the class I wish to speak?) At the end of this time, I say, it is too often the case that both the main shaft and engine are found by an experienced mining engineer to be exactly in the opposite place to where they should be, and the manager without even a plan of the underground workings!

Now, this is the ordinary type of a vast number of men chosen from large mines, and immediately employed as managers of new ones. If such a man be able to judge properly the nature of the rock he has to attack, and can tell what men ought to be paid for its excavation; if he can put in pitwork, and in addition perhaps make a wooden wheelbarrow, he is considered efficient. The two former qualifications are, of course, absolutely necessary, but how much more is required when he accepts the sole management? The agent I have endeavoured to pourtray here is a very common one; at the same time, far more capable than many who obtain such situations.

You must clearly understand that I do not mean to insinuate that Cornish mining agents as a body are ignorant and inefficient, as I know full well that there are men in Cornwall occupying such positions who, being educated in a superior manner, are thoroughly competent to undertake and successfully carry out the most difficult mining engineering, and scientifically prove any extent of mineral land that may be trusted to their charge either at home or abroad; men who are found in every part of the world to be the most able and best qualified to carry out mining operations, and are a credit not merely to the county of Cornwall but to the name of England itself. This class, however, is not a large one, and many who have had the intense good fortune to find a course of ore staring them in the face when entering upon their management are too often considered clever and competent, because they have a rich mine, and obtain other situations, to the exclusion of more able hands. A person of very ordinary mining ability can properly break and bring to surface the produce of a vein of ore, but the one entitled to credit is he who first discovers it in the vein. How many levels are discontinued because the agent fancies the lode looks “unkindly”? How many are continued on account of the opposite supposition? Then, again, how many mines have been abandoned by one party, who have driven within a few feet of a deposit of ore, and so left riches for the succession? Instances have been known where a mine has been wholly worked by the side of rich courses of ore; the workings, having all been made upon one part of the lode, mistaken for the main part, being wholly unproductive; whilst a short right-angled drivage would have discovered all!

The position of manager of a mine is one of great trust, responsibility, and unlimited control. He has under his immediate command miners, carpenters, smiths, masons, engineers, and labourers. He has the ordering of supplies of almost every description, and he has frequently no check whatever upon the monthly cost-sheet he sends up to London, nor upon the payment of it. In a word, he is the only person the shareholders have to look to in everything; and it is upon his statements, upon his judgment, on his capability, and on his honesty, they have entirely to rely that their money is judiciously and properly employed to their advantage, and in the economical development of the resources of the property entrusted to his charge. He is the only one who really knows what has been met with under-

ground, and he can, if he be so inclined, either exaggerate the value of any treasure, or hide it altogether. Even a well-informed and careful inspecting agent is always more or less in the hands or at the mercy of the resident manager. Beyond the different ends or extremities of a mine the inspecting agent can learn nothing in a day's inspection without the aid of the one who knows what has been passed through in the different drivings. It is possible when going along a level, with air-solids under your feet, that you may be walking over a rich branch of tin or copper, although you may be told that all along here the lode was small and poor.

Having shown you what a position of trust the mine manager holds, I now come to the question of salary. What does your agent get? 200*l.* to 300*l.* a-year? *No*; he receives 75*l.* to 100*l.* a-year! So this man, suddenly elevated from the position of a labourer to a situation of immense trust and responsibility, with all the temptations and seductions of solicitors for orders thrown in his way, the free access to all kinds of stores and materials, with the handling and disposition, perhaps, of 300*l.* or 400*l.* per month (generally so when out of Cornwall), who is expected to know everything connected with mine management, and be able to commit his ideas to paper and communicate with his employers, &c., only receives the wages of a journeyman carpenter, or, in many instances, less than the tributary who works under him! There are many men who prefer to work as tributaries rather than be elevated to the responsible, but un lucrative, position of captain.

I would urge that all candidates for the office of mine managers should first pass an examination before the Miners' Association or School of Mines, and receive a certificate of qualification. Possessors of these testimonials of efficiency would be in eager demand, and should then command a fair remunerative salary. The increased salary would be a strong inducement, and a better informed class of men would be the result. When such a reform is effected in this principal department of mining we shall have to deplore fewer instances of capital wasted, shareholders disheartened, and promising seeds prematurely abandoned.

You, Mr. Editor, have seen the mining interest within the last ten years under a variety of phases, both prosperous and unprosperous, with an intermittent state of flickering, and I think you will not fail to notice that there is now a promise of an early return of activity and increased patronage, but it is, and will be, under different circumstances to the past. Reform in mining is going on very rapidly, though perhaps little observed, and a new era is dawning upon the pursuit, which, when stimulated with one or two instances of unmistakable success, will bring forth its features so prominently that mining investment will no longer be in the rear of public approval, but will obtain a fair share of that enormous capital which now remains unemployed in this country. T. E. W. THOMAS.

Great Winchester-street-buildings, E.C., Aug. 25.

#### THE MINERA MINING COMPANY (LIMITED), AND THE WHEAL SETON MINING COMPANY.

SIR.—The MINERA is a lead-blende mine, situate in Denbighshire. We have before us the annual report of this company, issued to the proprietary on Aug. 7, and have never known anything in the annals of mining enterprise so refreshing, satisfactory, and encouraging to cheer the miner in his laborious and speculative path to success.

When the company was first started there were many difficulties to be overcome, and but for the energy and skill of the executive and the promoters it is far from improbable that they would never have been surmounted. The able report of Mr. John Taylor, the company's engineer, explains fully the great extent and resources of the

property, the many points of prospective promise, and the apparent certainty of a permanent career of success.

The sett is very extensive, and capable of extended development, and with fair prices for lead and blende the profits must greatly increase. The returns for 1863 were 6826 tons of lead and 710 tons of blende, which realised 93,101*l.* 4*s.*; and for 1864 the yield was 6822 tons of lead, and 1179 tons of blende, which realised 103,293*l.* 5*s.* 6*d.*

For these two years the expenditure on the works for labour, materials, stores, taxes, &c., were respectively 31,962*l.* 19*s.* 10*d.* and 33,699*l.* 0*s.* 11*d.* showing an increase of costs of only 173*l.* 1*s.* 1*d.* against 10,192*l.* 1*s.* 6*d.* excess of money realised during 1864 over that of 1863. The average price of lead for the two years was 13*l.* 6*s.* 8*d.* and 14*l.* 7*s.* 1*d.*; and for blende, 2*l.* 18*s.* and 4*l.* 11*s.* 1*d.* The price of the latter advanced in 1866 to 4*l.* 14*s.* 11*d.*, since which it has receded to 3*l.* 16*s.* 5*d.* The prices of lead ore since June, 1864, show the following decline:—1865, 13*l.* 13*s.* per ton; 1866, 13*l.* 1*s.* 8*d.* per ton; 1867, 12*l.* 14*s.* 4*d.* per ton; and 1868, 12*l.* 2*s.* 4*d.* per ton. The yield for 1868, to June 30, was—lead ores 5816 tons, and blende 2466 tons, realising 79,871*l.* 6*s.* 2*d.* The costs for 1864, as shown above, were 33,699*l.* 0*s.* 11*d.* against 36,744*l.* 2*s.* 5*d.* for the year 1868. The falling off in the price of lead and blende during the four years amounts to 14,831*l.* 19*s.* 6*d.*—13,013*l.* 6*s.* for the former, and 1818*l.* 13*s.* 6*d.* for the latter—equal to 40 per cent. upon the dividends of 37,350*l.* per share declared during the past year. It is, therefore, evident that these mines have suffered severely from the commercial stagnation of the times, and that with the revival of trade and the renewal of confidence, this important property, which shows such vitality and vigour in its yield, will exhibit far more brilliant results. The reserves of lead ores underground are estimated at 14,516 tons, which, valued at 12*l.* 2*s.* 4*d.* per ton, the average price for the past year, amounts to 175,885*l.* 10*s.* 8*d.* exceeding the previous annual estimate by 856 tons, of the value of 10,371*l.* 17*s.* 4*d.* The reserves of blende are not referred to in the report, but we may fairly assume them to be fully 6000 tons, equal to a further sum of 18,000*l.*, raising the reserves to the enormous sum of 193,885*l.* 10*s.* 8*d.* to which must be added value of plant and machinery, 14,721*l.* 10*s.* 3*d.*; stock of lead ores and blende at surface, 5762*l.* 4*s.* 3*d.*; stores, 995*l.* 7*s.* 1*d.*; dead rents recoverable from further dues, 3414*l.* 9*s.* 4*d.*; ordinary trade debts, 877*l.* 7*s.* 11*d.*; 900*l.* Victoria and Canada Bonds, quoted 113 to 115, and 103 to 105 per cent., cost the company 8904*l.* 17*s.* 4*d.* The market value of the property is 315,000*l.*—1800 shares (25*l.* paid) at present price of 175*l.*

The following particulars respecting this property may, probably, prove interesting to your readers. The returns commenced in 1852, when they were 1230*l.*, and in 12 years increased to 103,293*l.* after which they diminished in 1865 to 93,101*l.* 4*s.*, in 1866 to 81,648*l.* 18*s.*, in 1867 to 72,095*l.* 11*s.* 6*d.*; in 1868 they advanced to 79,871*l.* 6*s.* 2*d.* The promoters of the company were paid the sum of 7500*l.* Royalties on minerals sold amounted to 82,520*l.* 14*s.* 8*d.*; costs, wages, and materials, 455,277*l.* 5*s.* 5*d.*; and the dividends, 420,541*l.* 5*s.* The future prospects are evidently brightening. The report is fraught with promise, the management sound and practical, and we may fairly expect the market value of lead and blende to advance, while the cost of production will continue comparatively stationary.

WHEAL SETON has been a prosperous company since the year 1848, although the amount of gains has not been large. The price of very ordinary mining ability can properly break and bring to surface the produce of a vein of ore, but the one entitled to credit is he who first discovers it in the vein. How many levels are discontinued because the agent fancies the lode looks “unkindly”? How many are continued on account of the opposite supposition? Then, again, how many mines have been abandoned by one party, who have driven within a few feet of a deposit of ore, and so left riches for the succession?

Instances have been known where a mine has been wholly worked by the side of rich courses of ore; the workings, having all been made upon one part of the lode, mistaken for the main part, being wholly unproductive; whilst a short right-angled drivage would have discovered all!

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ground, and he can, if he be so inclined, either exaggerate the value of any treasure, or hide it altogether. Even a well-informed and careful inspecting agent is always more or less in the hands or at the mercy of the resident manager. Beyond the different ends or extremities of a mine the inspecting agent can learn nothing in a day's inspection without the aid of the one who knows what has been passed through in the different drivings. It is possible when going along a level, with air-solids under your feet, that you may be walking over a rich branch of tin or copper, although you may be told that all along here the lode was small and poor.

Having shown you what a position of trust the mine manager holds,

I now come to the question of salary. What does your agent get?

200*l.* to 300*l.* a-year? *No*; he receives 75*l.* to 100*l.* a-year!

So this man, suddenly elevated from the position of a labourer to a situation of immense trust and responsibility, with all the temptations and seductions of solicitors for orders thrown in his way, the free access to all kinds of stores and materials, with the handling and disposition, perhaps, of 300*l.* or 400*l.* per month (generally so when out of Cornwall), who is expected to know everything connected with mine management, and be able to commit his ideas to paper and communicate with his employers, &c., only receives the wages of a journeyman carpenter, or, in many instances, less than the tributary who works under him! There are many men who prefer to work as tributaries rather than be elevated to the responsible, but un lucrative, position of captain.

I would urge that all candidates for the office of mine managers should first pass an examination before the Miners' Association or School of Mines, and receive a certificate of qualification. Possessors of these testimonials of efficiency would be in eager demand, and should then command a fair remunerative salary. The increased salary would be a strong inducement, and a better informed class of men would be the result.

T. H. TILLY, deceased, 282*l.* 13*s.* 5*d.* valued at ..... £ 58 3 1

Tin and other metals sold ..... 452 7 6

Subsistence advanced to tributaries, &c. ..... 731 15 0

Petty cash ..... 12 0 0

Income tax account ..... 55 16 4

The British Arsenic Company ..... 7 0 6

T. M. Williams & Co., 1032*l.* 19*s.* 5*d.* bankers ..... 1899 3 10

M. C. Seton and Sons ..... 0 0 3

Paid Statuary assessment, not charged ..... 8 0 8 £ 3204 7 2

The bankruptcy of Hawkey and Co. ..... £ 2602 12*s.* 1*d.*

Debts of the company—Merchants' bills ..... £ 798 11 6

As per cost-book ..... 4346 12 0

" " Royalties ..... 739 16 10

" " Poor rates ..... 30 0 0

Surgeon's pence ..... 68 9 3 £ 5981 9 7

It appears to us that this company stands at the close of June

month, as audited on Aug. 10, to be in debt the sum of 5981*l.* 9*s.* 7*d.*

## Meetings of Public Companies.

## BRYNPSTIG MINING COMPANY.

An ordinary general meeting of shareholders was held at the Dudley Arms Hotel, Dudley, on Monday.

Mr. JOB TAYLOR (Mayor of Dudley) in the chair.

Mr. S. H. KOUGH (the secretary) read the notice convening the meeting, and the minutes of the last were approved.

The revenue account showed a profit upon the five months' operations of 350*l.*, and the ore sold during that period realised 1614*l.*

The report of the manager, Capt. John Kitto, was as follows:—

*Aug. 24.*—Since our last half-yearly meeting we have completed the sinking of the new engine-shaft to the 24, and have driven the said level 11 fms. east and about the same distance west on the course of the lode. The eastern drivage has been, on the whole, the most productive, and will yield at present 15 to 20 cwt. of ore per fathom, which in easy ground, such as we have, will pay well for working, and leave a good profit. It will be remembered that at the 12, 8 fms. east of shaft, the lode became suddenly disordered by a small cross-course, and split into branches, but at the 24, notwithstanding we have driven 11 fms. from shaft and 3 fms. east of same cross-course, there is not the slightest sign of such a change, and the lode still maintains its size and character. Another excellent feature in connection with this level is the fact of its having drained all the water from the 12 fm. level to the present forebreast, which is still fully 30 fms. in advance. The lode in the 24, west of shaft, is about 4 feet wide, and interspersed throughout with lead and blonde, but at present is not rich; the best run of ore ground that we have had in the 12 is still in advance of this (24) end, but I expect shortly to reach it, and am anxious to do so, as I believe it will materially assist us in our returns of ore. We have two rilles in roof of the 24, one east and the other west of engine-shaft, both of which are opening up good tribute ground, and will yield about 10 cwt. of ore per fm. The 12 is driven east of engine-shaft upwards of 40 fms., and since the last meeting the driving has been continued on the south part of the lode, but before driving it further in the same direction I think it will be advisable to cross-cut north in order to ascertain if we are on the main part of the lode or otherwise; we have lately intersected a beautiful cross-course in this drivage, which I think in deeper levels will have a very beneficial influence on the lode. We have two tribute pitches at work in roof of the 12, and a whine is being sunk below by four men, at 5*s.* per ton. It may be well to remark, in conclusion, that from above the 12 we have raised and sold nearly 300*t.* worth of ore, as may be seen from the balance-sheet, and when we remember that half of this ore ground between the adit and the 12 was taken away by the old workers, and that this we can without difficulty deepen our mine at the rate of two levels a year, I think this may be regarded as a safe guide for the future, and the best guarantee that can be given of the success of the undertaking.

The CHAIRMAN said it afforded him much pleasure in meeting his co-proprietors upon the present occasion, because it gave him an opportunity of congratulating them upon the gradually improving position and prospects of their already attested valuable property. Unlike most enterprises formed for the purpose of developing mineral properties, the Brynpstig executive, in consonance with the expressed sanction of the shareholders, had, so to speak, capitalised the ore—that is to say, instead of crediting the revenue account with the amounts realised by the sales of ore, they had been employed in the extension of operations, and in placing the mine in an effective working condition. Had the course usually adopted been pursued with regard to Brynpstig, and which, perhaps, after all, was the most judicious for the development of mineral properties, while it was, at least, the fairest for the property—had that plan been adopted in their case, the Brynpstig balance-sheet at the present time would have shown a good round sum standing to the credit of profit and loss. The balance-sheet showed that upwards of 300*t.* worth of ore had been sold during the past twelve months, and the manager would inform them that the whole of those returns had been made from above the 12 fm. level. Some time since he computed that the returns from above that point of operations would realise about that amount, and, therefore, he need hardly say it was especially satisfactory to him personally to find his anticipations so closely realised. As a further confirmation of the opinion he had always entertained as to the value of their property, he might direct attention to the fact that the lode in the next level—the 24—had, so far as developed, proved itself far superior to what it was in the level above, the improvement being at least equal to that which was found to have taken place from the adit to the 12 fm. level—thus practically proving that increased depth meant augmented value. He would not, however, now detain them by any further remarks, but would much rather invite the shareholders to obtain from their manager, who was present for that purpose, every item of information they deemed necessary as to the position and prospects of their property, for he (the Chairman) was fully convinced that the absent shareholders had but a very imperfect idea as to the intrinsic value of the property they possessed. (Hear, hear.) He then moved that the reports and balance-sheet be received and adopted.

Mr. WILLIAM PEARSON, of Stourbridge, said he could endorse all the Chairman had stated as to the merits of the Brynpstig Mine; indeed, had the Chairman so desired, he might have made out as the lawyers have it—a very much better case, for he might have pointed out the fact that the former workers had removed half the stuff from between the 12 fm. level and the adit; and, as the present company had realised 300*t.* for the ore sold from that point, it was but a fair computation—the more especially as the 24 had, so far as developed, proved superior to the 12—that, even taking the same scale of production, four times the amount of ore would be extracted from between the 24 and the 12 fm. levels, in which case they would realise 12,000*t.* instead of 300*t.* His own opinion was that at no distant day Brynpstig would successfully vie with the Van Mine, which was at the present time returning 100 tons of lead ore per month, although only 15 fms. below adit. One important feature in connection with Brynpstig was the fact that, although the present company had been at work not more than about two years, it had already divided 200*l.* per month, and, in addition, sold 300*t.* worth of lead and blonde, equal to 4*s.* per cent. upon the capital of 9200*l.*

Mr. JOHN OWEN (of Dudley) said that had the directors appropriated the amount of profits realised by the sale of ore for the purposes of dividend it would have been equal to 25 per cent. upon the capital expended, while 20 per cent. had been received from the sale to the Mid-Wales Company, which together made the amount 45 per cent.

Capt. JOHN KITTO (the manager), replying to questions from different shareholders, stated that when he first became connected with the mine it was represented to him that some excellent ore ground had gone down below the adit level; but he did not feel himself justified in putting up the necessary machinery before he had thoroughly satisfied himself that the reported ore ground was actually there. He accordingly sank the old shaft to the 12 fm. level, and put out a cross-cut. They continued to drive through ore ground varying in productivity from 5 cwt. and 6 cwt. to 2 tons per fathom, for no less a distance than 5 fm. in length. When he found this was the case, he felt himself justified in recommending the directors to incur the expense of sinking a new engine-shaft from surface, which was necessarily a long and expensive work. That shaft was sunk through ore ground to the 24 fm. level, and the driving, which had been extended east and west for about 11 fms. in either direction, proved that the lode had increased in productivity, and particularly to the east of the shaft. It was found in the 2 fm. level, at about 8 fathoms from the shaft, that the lode was split up into branches, but at the 24, under the same point, there was no sign of any split in the lode; one of the best features in the 24 was the fact that it had drained the 12, the end in which level had intersected a beautiful cross-course, which really almost amounted to a lode—in fact, he believed it would turn out to be a north and south lode. They had driven 2 or 3 fms. upon its course, and it maintained its bearing and underlie as regularly as any lode he had ever seen. It was dipping east, and it looked as if the ore ground were lengthening under it. He had no hesitation in saying, from present appearances, that the ore ground would considerably lengthen, and he had no doubt that the cross-courses would have a very important and beneficial influence on the value of the lode.

The CHAIRMAN asked what amount had been realised by the ore extracted from between the adit and the 12 fm. level?—Capt. KITTO said that more than 300*t.* worth of ore had been returned from between these points, although at least one-half of the ore ground had been previously taken out by what was technically known as the "old workers."

The CHAIRMAN asked what might fairly be expected to be returned between the 24 and the 12?—Capt. KITTO said that he confidently looked to open up quite double as much ore ground as had been found between the 12 and the adit. As had already been stated, the lode in the 24, as far as seen, was better than it was in the 12.

Mr. JAMES FROST (of Dudley) wished to know if the ore ground between the 12 and the 24 fm. levels, lengthened in the same proportion as it had done between the adit and the 12, what amount would be returned?—Capt. KITTO said in the 12 fm. they had ore ground for 50 fms. in length, and he thought it might fairly say that they would have an increase of at least one-fourth in the 24 fm. level.

Mr. PEARSON said the advantage would be that for what cost 55*s.* between the 12 and the adit would be done from the 12 downwards for 25*s.*

The CHAIRMAN wished to know, from the experience Capt. KITTO had had of the mine, what it would cost to remove the ore?—Capt. KITTO estimated it could be taken away for about 25*s.* per fathom, while the ground had averaged over  $\frac{1}{2}$  ton of ore, and in others from 1 ton to  $\frac{1}{2}$  and 2 tons per fathom.

Mr. KOUGH asked if the manager had anything particular to state with reference to Goldsworthy's stope?—Capt. KITTO said that was a run of ore ground referred to in his report, and was better than anything he had seen in the 24.

Mr. ROSS asked if there were any ground for hoping that the direction would be in position to declare a dividend at the meeting in February?

The CHAIRMAN had not the least doubt of it. As far as he was concerned he certainly knew of no particular difficulty, providing they did not exceed the proceeds of their sales in extending the plant. Mr. PEARSON said he not only fully expected a dividend in February, but he had no doubt whatever that in a short time the shares would be marketable at 10*s.* each.

Capt. KITTO, replying to a question, stated that the Brynpstig lode was the nearest known parallel to the Van, which was producing 100 tons of ore per month. On the other side there was the Mid-Wales, which was also opening up satisfactorily; and Plynlimon was in the same neighbourhood—a mine which had been brought into a productive state in an extraordinary short period.

Mr. OWEN considered that the shares in the Mid-Wales Mine which had been allotted to the Brynpstig shareholders in lieu of money were in all respects equal to 200*t.* in cash, and therefore equivalent to a dividend, and there was no doubt that these shares would in a short time be a valuable security. He was looking forward to receive dividends at the rate of 50 per cent. per annum from both the Brynpstig and the Mid-Wales Mines, although the latter would not, in all probability, do so as early as the former, simply because operations at Brynpstig were commenced earlier than those at Mid-Wales. He had never sold a share, and all he could say was that now he would not sell them for double the amount they had cost him. (Hear, hear.)

The reports and balance-sheet were adopted unanimously.

Upon the proposition of Mr. S. H. KOUGH, seconded by Mr. ROSS, it was resolved that the remuneration of the directors to and including the present meeting be fixed at 7*s.* guineas, exclusive of expenses.

On the proposition of Mr. FROST, seconded by Mr. PEARSON, it was resolved that 40*l.* (exclusive of expenses and legal charges) be voted to Mr. Kough, as secretary.

The CHAIRMAN said the next question to be considered was the advisability of having a London representative. After due consideration, the board had decided upon appointing Mr. ROSS, Ross and Co., to that position. He (the Chair-

man) had had many opportunities of seeing the perfect and satisfactory manner in which that firm conducted the affairs of other companies, and the methodical and lucid manner in which they kept and submitted the accounts to the respective proprietaries. Under these circumstances, and it being deemed desirable to have a representative in London, he had much pleasure in proposing that Mr. ROSS be appointed secretary. (Hear, hear.)—Mr. OWEN considered that the appointment would prove equally satisfactory to the appointees and the appointees. He need hardly say that the board had not selected Mr. ROSS without due consideration, nor without feeling assured that the advantages to be derived by his appointment would be reciprocal. (Hear, hear.)

Mr. S. H. KOUGH having resigned, and a vote of thanks having been passed to him for his past services, it was resolved that Mr. ROSS be appointed secretary.

Mr. ROSS thanked the directors and shareholders for the compliment they had paid him in selecting his firm as their London representatives, and he could not but regard the compliment as the greater when he remembered that the Chairman of the directors was no less a gentleman than Mr. Job Taylor, Mayor of Dudley, who had large experience in all matters relating to mining. He (Mr. ROSS) might take the present opportunity of mentioning that upon his first visit to Brynpstig he formed a very favourable opinion of it, and, therefore, he accepted the position of secretary with very great pleasure and satisfaction—particularly so when he remembered that he succeeded a gentleman who held such a high position in the professional world as Mr. S. Harley Kough. (Hear, hear.) He certainly thought the directors had taken a wise step in having the chief office of such an important mine as Brynpstig in London. He supposed his association with the Mid-Wales Mine, which originally formed a portion of Brynpstig, had been one reason which induced the directors to select his firm, for he might state that no one was more surprised than himself when he received the first intimation as to the directors' intention. As, however, they had paid him, he could unhesitatingly assure all connected with the high position in the professional world as Mr. S. Harley Kough. (Hear, hear.) He had adopted in the financial management of mines, and stated that it would be a very good thing for directors as well as shareholders if all accounts were kept in the same manner. He (Mr. ROSS) was obliged to the Chairman for that complimentary allusion, and all he could say was that his principle, in all cases where other people's money was being dealt with, was that the plainest and most accurate accounts were essential to a proper understanding between executives and constituents. (Hear, hear.)

Votes of thanks having been passed to the Chairman, directors, and manager, the meeting separated.

## CASHWELL LEAD MINING COMPANY.

The annual meeting of shareholders was held at the White Hart Inn, Newcastle-upon-Tyne, on Wednesday,

Mr. W. F. DE MEY, M.D., in the chair.

The balance-sheet and the following report from the agent were submitted to the meeting:—

Within the last 12 months the main drift below the Scar Limestone has been driven eastward in the vein 24 fms.; it has been very hard, and on this account slow to drive, but the vein has yielded ore very well—indeed, it has been very productive, and it affords me very great pleasure to have to report still more favourably on this part of the mine, as the present appearance of this forebreast is easier and better to drive, and altogether it has not looked so well for a considerable time, and if it continue as it is just now it will lay open some good bearing ground. The heading above this drift and, next to the forebreast above mentioned is yielding ore very well indeed; the vein is 5 ft. wide, and well mixed with ore, producing very large pieces; it is looking very well at the east end of this ground, and where the next new heading will be commenced. About 20 fms. behind, and westward from the last-named heading, a piece of ground is being worked in the upper part of the limestone, and although it is not rich, the vein is producing some nice ore in places. The drift below the Scar Limestone has been driven 7 fms., and a rise made into the sill above, but the vein does not contain ore to pay for working; it is wide enough in the lower part of the sill, but is straighter in going up. At present a rise is being put up from the working in Scar Limestone to communicate with the Slaty Hazel drift at this point. Further west a heading is being worked in the Slaty Hazel and Five Yard Limestone, and is paying well; the vein is straight, but contains some good ore, and both those pieces may improve shortly. At the Dauke's Mine a sinking has been made in the vein at the level forebreast, but as it was without any throw I suspected the main vein to be off on the south side; a cross-cut was made accordingly, and met with it, and is at present sinking into the Scar Limestone in the Cashwell drift; so far as tried no ore has been met with, but judging from the appearance of the vein on the surface, ore ought to be met with before long. If successful in sinking, it is intended to rise and try the vein in Slaty Hazel. In conclusion, I beg to remark that the Cashwell Mine is looking very well, and promises to do so, and in a short time the appearances at the Dauke's may be quite as promising, as the same vein is being worked and in the same strata as at Cashwell Mine, and as there is plenty of whole ground between, the importance to be attached to this property can scarcely be estimated or overrated.—JOHN PEART.

The CHAIRMAN, in moving that the report and balance-sheet be received and adopted, stated that the accounts showed a balance in favour of the company of 72*l.* 6*s.*, and recommended that a dividend of 1*s.* 6*d.* per share be paid, which, being put to the meeting, was carried unanimously.

The two retiring directors, Messrs. W. C. ARNISON and Simeon Joel, were unanimously re-elected. A vote of thanks passed to the Chairman terminated the proceedings.

## ENGLISH AND AUSTRALIAN COPPER COMPANY.

The half-yearly meeting of shareholders was held at the London Tavern, on Thursday.—Mr. R. A. ROUTH in the chair.

The notice convening the meeting having been read, the report of the directors (which appeared last week) was taken as read.

The CHAIRMAN having referred to the salient points in the report, pointed out that the gross quantity of ore delivered to the works by the South Australian Mining Company during the six months amounted to 2524 tons 3 cwt., which was an increase upon the corresponding half of the previous year, when the quantity delivered was 2486 tons 11 cwt. The ore received from other mines, however, showed a falling off from 1823 tons in the latter half of 1866, to 1192 tons to Dec. 31, 1867. The quantity of ore smelted at the Burra Burra Smelting Works, from July 1 to December 31, was 1368 tons in 1867, as compared with 1498 tons in 1866. The quantity of regulus and ore smelted at the Port Adelaide Smelting Works amounted to 1550 tons in the six months with which the report dealt, as compared with 2811 tons in the corresponding half of the year 1866. The quantity of copper made at the Adelaide Smelting-Works, including rough copper sent from the Burra Burra Smelting-Works to be refined, was 878 tons for the half-year ending Dec. 1867, as against 901 tons in the half-year ending Dec. 1866; and the quantity of copper shipped from Australia for the same period was 656 tons in 1867 and 637 tons in 1866. For more than 12 months the Burra Burra Mine had not been worked to any extent, but Mr. Darlington had been sent out to re-organise the works upon a more extensive scale, and he (the Chairman) had no doubt that any re-organisation would be a source of profit to this company. The railway, which will run up to the works at Kooringal, and connect them with the port, had been commenced, and if it were true that discoveries of ore had been made close upon the Burra Burra, these could not fail to increase the advantage which the railroad must be to their property. The quantity of ore received from other mines, as compared with that received the previous six months, showed that the mining interest required only to be stimulated to ensure increased supplies, which would make them less dependent upon the Burra Burra Mine. The depression in the copper market still continued, contrary to the usual order of things, inasmuch as the consumption of copper had kept pace with the increased production. As far as this company was concerned, it had been sufficiently strong not to be obliged to force the market, while all the sales of the company had been made at the full current rates. His opinion was that the crisis which had affected the value of copper since 1866 had passed away, that trade generally was healthy, and that with cheap money—for capital was on strike—a better state of things would ensue, and with it there was no question an advance would take place in the price of metals. The general opinion of everyone is that they had seen the bottom of the fall, and that prices would gradually recover. He thought the shareholders in this company ought to be congratulated not only that both ends had been made to meet, but that the directors were able to recommend a small interim dividend upon the present occasion. His impression was that a higher rate of dividend might have been paid, but the directors were anxious to be on the safe side; and they hoped at the end of the year to recommend with reference to the wharf at Port Adelaide, that the 220 feet could be yielded a very satisfactory return; and it was calculated that the remaining 500 feet would increase their income by 200*l.* a year, therefore, the directors were anxious to complete the work. The estimated expenditure upon it this year was 2500*l.*, which would be taken from their working capital, and would not in any way interfere with their profit and loss account. He concluded by proposing a dividend of 6*d.* per share.

The proposition was put, and carried unanimously.

The CHAIRMAN, replying to a question, stated that their own mine captain had examined the Burra Burra Mine, and had reported that the extreme depth of the deepest shaft was 50 fathoms, and that there was sufficient ore there to ensure them against falling off in supply for the next 20 years.

A vote of thanks to the Chairman and directors was passed, which terminated the proceedings.

## FOREIGN MINING AND METALLURGY.

The week which has just elapsed has presented no very striking fact as regards Belgian metallurgy; orders continue to arrive at the works to a tolerable extent, but great works continue to make default. Several important orders, especially in Russia, are at present being sought after by Belgian industrials, but hitherto nothing has been determined on. The general production of the mines and mineral bearings of the province of Namur was 545,821 tons in 1867, value 55*s.* 6*d.* per ton, and equivalent, after washing, to 377,103 tons, at 8*s.* 7*d.* per ton. In the preceding year the rough production amounted to 797,470 tons, showing a diminution of 251,649 tons in the production of 1867. The official statement of the condition of the province of Namur for 1867 shows that the production of minerals in that province has been decreasing since 1866, and fears are entertained that the decrease has not yet been carried to its full extent. Hydrometals figure in the total production for 399,134 tons of rough minerals, produced after washing 140,416 tons; a diminution is here indicated in the production of 1867, as compared with 1866, of 44 per cent. The production of oil-glass minerals amounted in 1867 to 236,687 tons, against 297,454 tons in 1866; the diminution is, thus, less sensible in this quality. The metallurgical crisis contributed, no doubt, to the considerable diminution which was witnessed in 1867 in the extraction of minerals in the province of Namur; but, according to the official report, the state of the bearings had also something to do with the matter, especially as regards the hydrated minerals. The rapid decrease which has been remarked since 1866 in the extraction of minerals between the Sambre and Meuse should be attributed to the abandonment of the principal workings, which were carried on below the level of the waters, with the aid of powerful drainage engines; and it is feared that the results of 1868 will be less satisfactory.

than those of 18

mann, a species of fern abundant in the coal deposits of India, Port Jackson, and South America, and eminently suggestive of a Mesozoic formation and age, rather than of Paleozoic. Mr. Etheridge also thinks that there are traces of *Dicyopteris*, and of seed cases, and stems of *Chyllothea*, which have much the same meaning, and he entertains little doubt that further search will bring to light characteristic shells, which will satisfactorily prove that the Natal coal is either Jurassic or cretaceous. The coal, when burnt, has precisely the smell which belongs to the lignites of those Mesozoic epochs, which has a higher percentage of water and ash than the Paleozoic varieties of coal.—Specimens of the *Natal* coal, and of the fossil impressions associated with the beds, were exhibited at the section, and elicited from Prof. PHILLIPS a series of remarks, which in the main strongly supported the views of the paper. He considered there could be no doubt the matter amply deserved the investigation which it was obviously about to receive, and hoped that the British Association was to have other communications on the subject from Dr. Mann. The entire matter interested him from more than one point of view.

#### THE MINES OF CORNWALL AND DEVON.\*

BY THOMAS SPARGO, GRESHAM HOUSE, LONDON.

In a former number of the Journal a very brief notice was given of this work; simply disclosing its object, stating the general outline of its contents, and describing the mode of its execution. It is too important to be dismissed with such brevity in the columns of a journal devoted to the mining interest. Mr. Spargo's book is statistical, descriptive, and historical. His statistics are characterised by severe accuracy, formed upon special reports of engineers, and from personal inspection, which must have been most expensive. These statistics are also characterised by extraordinary amplitude. All the mines in the great western mining counties are noticed, with complete details of their history, condition, mineralogical prospects, pecuniary resources, and of the market value of shares, in such instances as they are quoted on the Exchanges. The details given comprise statements of the number of shares into which a company is divided, and whether it be constituted on the Cost-book System or under the Limited Liability Act, what the royalty is, the lord under whom the lease is held, the precise locality of the mine, its contiguity to other mines, the geological and mineralogical peculiarities of the vicinity, the depth of the workings, the number of engines on the mine, with all particulars as to pumping, stamping, and winding; the number of men, boys, and females employed; the names of the managers, purser, mining captains, secretaries, &c. The advantage of going so minutely into everything connected with the state of each mine in such a book must be obvious to everyone who has invested, or is about to invest, in mining property. Sometimes the market is so successfully rigged, that when the price of the shares in a particular mine is very high there is little or nothing to be shown for it at the mine itself. By opening Mr. Spargo's book the dubious investor may at once see the amount of manual and other power actually employed at the time the statistics were compiled, the ratio of ore extracted, the value of the quality of ore obtained, and the character of the sett. It is next to impossible with such information that a man of common intelligence can be misled. At a time when commerce assumes so much of the character of gambling, Mr. Spargo's book must do good service to the *bona fide* investor, and deserves the title of "Investment made Easy," so far as mines are concerned; for no man has an excuse if he buy mining shares in the dark after the issue of this publication.

The descriptive departments of the work are of great value; indeed, it would not be too much to say that we have known of no book, even expressly topographical, in which so much and minute painstaking is shown in the description of localities, when that is important to the general object of the publication. There is, first of all, a general description of each of the counties. Their differences in climate, soil, production, the manners of the people; and their agreements and differences, geologically and mineralogically, are lucidly presented to the reader. In like manner each section of the counties is accurately defined, and its mineral peculiarities scientifically accounted for. This is important, as it directs attention to the quarters where it may be expected "finds" will be attained; at all events, where explorations would, on grounds of theoretic science, be reasonable. In connection with the descriptive portion of Mr. Spargo's work, we cannot too highly commend the excellent maps. Without these illustrations the work, although still a very useful one, would be shorn of the main feature of interest connected with it. They at once contribute to enliven and elucidate. The first of these illustrations is a "Parliamentary Map" of Cornwall, showing its divisions, on a scale of  $1\frac{1}{2}$  miles to 1 inch, and stating the area of each division, with its population. This map is tastefully coloured, and includes the Scilly Islands, and very finely reveals the sea coast line of the county. The next is a physical and geological map of the county of Cornwall, showing the boundaries of the various parishes. We heartily concur with the *Civil Service Gazette* in the following eulogy of this map:—

"Although applicable to general purposes, it is particularly adapted to miners, brokers, and others interested in Cornish mines, who by its aid can see at a glance the position of the various undertakings now at work, and minutely mark the physical features of each locality. It is a handy and helpful map for consultation. One great advantage which it has over previous maps is that it is not overcrowded with names, and there is, therefore, space to write any new name relating to a mine recently discovered."

This geological and parish map is on a scale of three miles to the inch. There are also plans of each mining district, and sections of particular mines of great celebrity. The longitudinal section of the Botallack Mine is at once beautiful, useful, and curious. As the works of that vast enterprise are carried far beneath the sea, the section is peculiarly interesting, as placing this graphically before the eye of the student. In all the statistical and descriptive matter of Mr. Spargo's book he has made it a *vade mecum* for investors, and intended investors, and it is impossible not to be convinced that capitalists into whose hands this book may come will look more favourably upon mines as an investment, and be able to comprehend clearly the course they should adopt in selection.

There is a great deal of useful information in the work of a more general nature. There is a very condensed description of the geological and mineralogical character of Great Britain, which expresses more about it in a short compass than we have ever before seen. We must make the following extract, as at once showing the tone of thought which pervades Mr. Spargo's pages, and the style in which they are written:—

"It is a remarkable fact that Great Britain is, with some exceptions that are not of sufficient importance to specify, a geological epitome of the whole globe, so far as its geology has been explored. In other regions of the earth vast areas are covered with one particular kind of rock, so that the geological student must leave his own country and travel to great distances in order to acquaint himself with the phenomena of the science generally. But viewing Great Britain in comparison with the continents of the Old and New Worlds, we may describe it as a geological cabinet, in which almost all specimens are found. So much is this the case, that foreign students repair to this country for the purpose of enriching their experience by the observation of such varied phenomena at so little travel, toil, or expense. The educated Briton is inexhaustible if he do not understand the ground beneath his feet, while foreigners hammer at its rocks, and dig out its fossils. A line drawn from Harwich across the country to the coast of Cardiganshire will pass over all the principal rocks which are found in the strata of any explored country."

Mr. Spargo's chapter on "Mining as an Investment" is very useful. His exposure of the tricks of the market for mining shares is complete. The "Bulls" are taken by the horns, and the "Bears," in spite of their hugging propensities, are pretty well squeezed. No one can fail to perceive that investments in a progressive mine and gambling in shares are processes as unlike as it is possible to be brought under one designation: yet they are both described as mining operations. One undoubtedly is mining, and the other might be called with a sort of grin, human undermining.

We dismiss Mr. Spargo's excellent production with warm commendation, and the hope that it will be extensively perused.

\* The Victoria Press, Farringdon-street, London.

INDEX TO "THE TIMES" NEWSPAPER.\*—The third volume of the "Index to the *Times*" is now published, and extends from April 1 to June 30 of the present year, and, as was observed in a previous notice, "No library is complete without it." It may be said—"Oh! but we so seldom shall have to turn to it; that it is almost needless to us." But do you say the same of "Watt's Bibliotheca," or "Brunet's Manual," or any other work of reference, that, perhaps, you do not turn to once in a year? "Oh no (they will say), but then our library would be incomplete without it: we may want it." So we would say of this volume. When any subject is in debate the proposal is sure to be—"Aye, but what did the *Times* say about it? For I know they had many articles on it." But then the enquiry has been—"How shall we find out when it was?" How? by having "Palmer's Index to the *Times*." Having that in your library, the reference is supplied in a moment. Literary men are difficult men to satisfy—they are a long time taking in an idea,—they can very rarely appreciate anything new, any novelty in literature; and thus it is that the Index has met with so sorry a reception. A few years hence, and it will be as

Lowndes, Watt, Dibdin, Brunet, "Notes and Queries," and other reference books to omit it will be an oasis which no other volume can fill. Is it, then, fair that the promoter should thus bear all the brunt of the enterprise, and when the establishment is achieved for the literary world to reap the benefit? Yet such is always the fate of projectors; but we trust such will not be the case in this instance, but that the friends of literature will give a helping hand to aid, and prove themselves able to appreciate now what in a few years will be not only invaluable, but we should be glad to say unattainable at less than a considerable advance in its price. It creates a new era in newspaper literature, and ought to be accepted as such by the newspaper press. Though absolutely an Index to the *Times*, it is actually an Index to every other daily paper, and will, in a measure, prove an Index to our Journal.

\* Index to "The *Times*" Newspaper, 4to, 5s.: Palmer, Catherine-street.

#### FOREIGN MINES.

IMPERIAL SILVER QUARRIES.—Lewis Chalmers, July 27: There is no State law against the use of nitro-glycerine, but it would be almost impossible to get miners here to employ it, the prejudice being so strong against it, on account of its explosive nature. If Penrice's machine will do 30 feet a-week in hard hornblende or silicite porphyry, in place of (as is claimed for it) 30 ft. per day, I shall be delighted to have it. Our water-power supplies the desideratum for furnishing compressed air at a moderate cost. During last week we completed 11 feet of tunnel.

UNITED MEXICAN.—Guanaxuato, July 15: Mine of Jesus Maria Jose: In this mine there is little or no change to record. The frontage going north-west from the pozo de Guia is in fair ore; that to the south-east does not look so well. Last week more buscones came in, and one of these workmen have found in a cross-cut driven to the bajo (back) of the old fronte de la Trinidad a strip of narrow but very good ore; and our miner has placed several others to work near him and in the same direction, with the hope of making similar discoveries. The ore received from the hacienda workings has improved in ley; and from tortas already in the patio I am convinced that our results in the quarter ending in September next will be better than those of the half-year already run out. The accounts for the month of June show a profit of \$2896.—Mines in the Guadalupe de la Oscura District: There are few buscones at work, and the amount of ore received from them is trifling, though some of it is of very fair ley. The Patrocinio mouth has been communicated with the Contral de Progreso. Last week 8½ cargas of ore were sent to Duran, and in the mine there are about 8 cargas more on hand from El Carmen and El Oro workings. For reasons already explained I am limiting the work in this district.—Haciendas, or Reduction Works: The haciendas are leaving good profits, and I confidently expect an increase in the second six months of the year.

CAPULA.—Capt. Paul, July 27: In my last, of the 8th inst., I informed you that the engine was put to work on the 2d. I am glad to say it works well; it takes from 6 to 6½ strokes per minute to keep the water in fork. The shaft is being sunk by three Englishmen and nine natives; at first the barreteros (according to their custom) refused to work themselves or let others work with the Englishmen in the shaft, but by suspending the working of the best stops they soon came to. As soon as we can get some houses put up for the men to live in who are coming here from Pachuca and Real del Monte, we shall be able to carry on the works of the mine without being interfered with by the people of this place. The ground in the shaft is very hard, and principally composed of quartz, in which we find good stones of blue ore; last week they sunk ½ vara; this week we expect they will sink at least ¾ vara. We are receiving good stock of fuel, in case September month should be very wet. Last week they delivered nearly 600 cargas, the weekly consumption being about 150 cargas. San Enrique end is without much alteration since my last; the lode is very large, and composed of quartz, with spots of blue ore all over; we have not yet met with the south wall; last week they drove ½ vara. The Esperanza level is driven by four men and two boys; there is still a narrow branch of ore to the south; the ground is a little harder; last week they only drove 60 centavos. We shall soon commence a cross-cut south to ascertain the width of the lode, and see whether it is more productive in that part. The end driving west from La Bomba shaft, under Angelito level, to communicate with the east stops from San Jorge rise, is still producing good quality ore; we are short of about 4½ varas to make the communication, after which San Jorge workings will be well ventilated. The stops east of La Bomba are suspended for the present, to allow us to clear all the attle from the Esperanza level. The water is nearly gone from the level; what there is is coming down La Bomba shaft, which we are going to take up in launders, and carry back to the main adit. We have cleared up some of the winzes to the east and south of shaft below adit, but we have not yet commenced sinking. Torta No. 5, of 111 cargas, was washed last week, and produced 274 marcs 2 ozs. (2192 ozs.), cast in two bars, which will be sent to Mexia by to-morrow's conducta. From torta No. 6, of 150 cargas, we expect 375 marcs (3000 ozs.), according to the mine assay. The assay from the torta will be made to-morrow. We have over 200 cargas of metal in the ore-yard of very fair quality (say 25 marcs per monton), which we shall send to Sanchez hacienda as soon as the weather will permit. We shall be able to get the silver to send by every conducta. I am in hopes we shall be able to send 150 cargas weekly at least to that hacienda. The weather has blown up a little; if it continues, we shall be able to send 200 cargas to Sanchez next week.

LUSITANIAN.—Aug. 18: Palhal Mine: In Taylor's engine-shaft we have to eat holes for bearers, for the removal of the lift from the 110 to the 120, when we shall resume sinking.—Levels on Basto's Lode: The lode in the 110, east of River shaft, is 1½ ft. wide, composed of flockan. In the 120, east of Taylor's, the lode is 4½ ft. wide, composed of quartz. At this point we have cut a part or all of the Mill side coming out from the south side of it. It is 1 ft. wide, composed of flockan. The 120, west of Taylor's, is worth 2½ tons of ore per fathom. The 110, east of Taylor's, yields 2 tons per fathom. The 110, west of Taylor's, produces ½ ton of ore per fathom. The lode in the 90, east of River shaft, is 1½ ft. wide, composed of flockan. The 70, east of River shaft, yields small stones of ore. The 28 west is composed of flockan and quartz. The lode in the 8 west is small, composed of flockan; and the adit contains stones of ore.—Levels on Caunted Lode: In the 100, east of the cross-cut at Taylor's engine-shaft, the lode is 1 ft. wide, composed of quartz, with a little flockan. The 80 and 90, east of the slide, are of similar character.—Levels on Ponto Lode: The 80 and 25, east of the slide, is 1 ft. wide, composed of quartz, spotted with lead and mica, with at times small stones of copper.—Level on Sido Lode: The lode in the 100, west of Taylor's, is 3 ft. wide, a mixture of flockan and country. There is no change in the 60 fm. level cross-cut, north of River shaft.—Winzes: The lode in the winze sinking below the 110, west of Taylor's, is 2 ft. wide, worth ¾ ton per fathom. The 70, winze, below the 80, east of slide, is holed to the 90; the men are preparing to drive the 90 east. In winze No. 75, below the 28, produces ½ ton of ore per fathom. No noticeable change has taken place in the stopes.—Carvalho Mine (Lead): That part of the lode we have in the incline-shaft, below the 40, is a small branch of quartz.—Levels on Great Lode: The lode in the 40, east of incline shaft, is 2 ft. wide, yielding 1½ tons of ore per fathom. The 30 east produces 1 ton per fathom. In the 20 east the lode is 1½ ft. wide, composed of quartz, intermixed with country, containing lead ore and 2 tons per fathom. The 10 east is worth 1½ tons per fathom; this end is communicated to the rise above the 20, which ventilates both the 10 and 20. The lode in the rise above the 40, west of incline shaft, is 3 ft. wide, worth ¾ ton per fathom.—Stopes on Great Lode: The stopes above the 20, east of incline shaft, are 2½ tons of ore per fathom; the lode is 1½ ft. wide, and the men are getting on tolerably well with sinking. Every means will be used to get it down to the 32 before the winter rains set in.

MARIQUITA.—Santa Ana Mines, July 20: The superintendent writes—On the 18th inst., the fixing of the lift of pumps to the 130 fm. level was completed, and we are now independent of manual labour for drawing water. This is the most important event for the welfare of this establishment which has been accomplished during many years. I had hoped to have commenced the hoisting of Hopkins's shaft to the 130, and, indeed, I might do so—so near are we to its accomplishment that the captain has assured me that it will be effected in the course of this day; but, as this letter must be dispatched within two or three hours, I cannot say that it is actually hoisted. Thomas's lode and Bull's lode continue increasing in size and quality as we sink, and in the 120 fm. level cross-cut, on the flockan, we have cut some branches of pyrites and grey silver ores. We are now in daily expectation of intersecting the main body of the lode, and I hope my next despatch will convey to the board the gratifying intelligence that it is accomplished.—MARMATO MINES for the month of June: Cost, \$10,541; returns, \$11,945.—AGUAS CLARAS MINE for the months of May and June: Cost, \$8945; returns, \$6201.

PESTARENA.—Aug. 22: We received damages from the flood that took place in the Anza, on Monday last. At Pestarena, it carried off our dams which supplied the water from the Anza to the mills, part of the dressing-floors and some ore thereon, a workshop, and some timber. It has also damaged the road between the Aquavite and Peschiera, undermined part of the foundations of the old pumping-wheel, and carried away about 25 metres of the water-course that supplied the water to the two pumping and hoisting wheels. We are now going on with great force, cutting further in the bank for a new piece of water-course, and we hope to have it ready in the course of one week, until which time we shall not be able to start the Peschiera pumps and hoisting machine. During the time required for repairs the water in the Peschiera is accumulating, which is our greatest damage, as it will necessarily take some time to pump out. The Aquavite department did not suffer near so much, the pumping-engine only being stopped a short time. This Aquavite water-course has been repaired, and we have commenced hoisting ore again. To-night some of the mills, "65 native," will be started, and on Monday next a further number. At Battiglio, the flood cut off a part of the head of the water-course; this we hope to put to rights during this week. The water-course at Piedimulera establishment stood very well; we only had to stop the machinery 24 hours.—THOMAS ROBERTS.

LAGUNA.—J. R. Rule, July 8: Pachuca: In the course of sinking the Laguna shaft we continue to meet with good spots of ore, and to pick out some for reduction, but the quantity as yet is small. I consider, however, that we are likely to prove the vein best by continuing to deepen the mine until we reach the 100 varas proposed, and at that depth by extending a level east and west, as I understand that the Mine of Arvallo, about which you make some enquiry, and which is some 350 varas westward of Laguna, made its best bunch at about 100 varas depth below Laguna surface. Sometimes it is found that the ore are continuous from the surface down, and at other times the ore are discovered at a considerable depth. In the district in which Laguna is situated both ores and indications of ores have been found for a considerable length near the surface. At about 450 varas eastward from Laguna is the old mine of Jesus, belonging to the negotiation of Jesus y San Rafael, which, as far as I can learn, gave a considerable quantity of ores. This mine it is intended to prove at a greater depth by means of the San Marcos adit, which yet wants about 250 varas to reach the old shaft of Jesus.

ALAMILLOS.—Aug. 17: In the 4th level, east of Magdalena shaft, the lode is small, yielding ½ ton of ore per fm., and the ground is easier for driving. The lode in the 4th level, west of Magdalena shaft, is large and hard, producing 1 ton of ore per fm. In the cross-cut north at the 5th level the lode has not yet been met with. The 5th level, east of GIL's winze, produces 2 tons of ore per fm.; having met with a hard bar of ground the lode fell off in value; the lode and ground are again improving. In the 5th level, east of Taylor's engine-shaft, the lode having got clear of the cross-course presents a very good appearance, and is worth 1½ tons of ore per fm. The lode in the 5th level, west of Taylor's engine-shaft, is large, composed of carbonate of lime, quartz, and lead ore, yielding of the latter ¾ ton per fm. The lode in the 4th level, west of San An-

driano shaft, is poor, and the ground hard. The 2d level, west of Crosby's shaft, cross-cut, yields ½ ton of ore per fm.; this has been communicated with Addis' shaft since last report.—Shafts and Winzes: Taylor's engine-shaft, sinking below the 5th level, yields ¾ ton of ore per fm.; the lode is very large, and lets out a quantity of water. Henry's shaft, below the 1st level, contains a splendid lode, producing 4 tons of ore per fm. Torrento's winze, below the 4th level, is worth 1 ton per fm. Francisco's winze produces ¾ ton of ore per fm.; the lode is large, and thickly impregnated with lead ore. Perez's winze, below the 2d level, is worth 1 ton of ore per fm.; the lode has improved—fine lumps of ore.

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD.—The directors have received advices from Mr. Rouch, their superintendent in New Granada, dated 15th July, with a remittance of six bars of gold, weighing 4883½ ozs., of which 4203 ozs. were the produce of the company's mines for the month of June, and 68 oz. the balance of gold raised in May. Mr. Rouch states that he hopes to send at least a remittance of equal amount next month. The directors have received reports from the mine captains for the six months ending the 30th June, and also one from Mr. Grieff, for the same period. At the Bolivia Mines there are now erected 66 heads of stamps, 54 of which are in full work, and stamped 1640 tons of mineral for the month, and the other 12 heads were quite ready for working. At Frontino, operations are being continued on a limited scale.

SAN PEDRO DEL MONTE.—W. H. Chynoweth, Mexico, July 28: I arrived here yesterday with the first 180 marcs (1440 ozs.) of silver, which will be introduced to-morrow into the Mint for refining, as a refining-furnace had not been erected at the reduction works, but we shall be prepared to refine our own silver in future; in my next I shall be able to inform you of the value of the silver. The amalgamation process was interrupted for eight days in the beginning of the month, in consequence of the administrator having been attacked with epileptic fits, which caused a diminution in the anticipated produce; to avoid a repetition of another such drawback, I have deemed it prudent to look out for a person to replace him.—The Mines: The end of Robarts' level continues on a rich lode of silver ore, but as yet it has not risen above 3 ft. from the bottom, although it is gradually "making up" as we drive south. It is very important to sink Santa Elena shaft as rapidly as possible, in order to open a new level, say at 20 or 30 yards below that of Robarts', which would establish the value of Wilson's lode. The south end of Wilson's level appears to be emerging from the unsettled ground or cross-course mentioned in former reports, and is producing occasionally stones of rich silver ore, from which indications we hope soon to overtake the same course of rich ore driven through for 40 yards immediately before the cross-course was intersected, particularly as we are "going to hill." The stopes south of Wilson's winze, and below Wilson's level, continue to produce the usual fair quantity of ore, as well as that south of San Carlos winze. With the object of reaching the rich ore ground discovered on the San Pedro lode in the adit, San Francisco winze, and San Enrique level, we have resumed driving the Santiago adit to communicate with Santiago shaft, and thereby drain all the workings on this lode. Five yards have been driven this month, and in about four months more we calculate this important work will be complete, when the much-desired opportunity will be afforded to increase the raisings of ore, which from this section of the mines is of a rich nature: 10 tons of ore have been dressed during the month.

CAPE COPPER.—John Williams, July 4: Ookiep Mine: The various operations carried on during the past month have been very satisfactory. The three shaftmen, with nine labourers, have finished cutting tip-plat, and extended the 30 fm. level west 1 fm., 1 ft. They will be engaged for the next two weeks in dividing

**WATSON BROTHERS' MINING CIRCULAR**  
**WATSON BROTHERS,**  
**MINING AGENTS, STOCK AND SHARE DEALERS, &c.**  
**1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.**

**M**ESSRS. WATSON BROTHERS return their most sincere thanks for the great patronage bestowed and confidence reposed in their firm for 25 years, and to assure their friends and clients it will be their earnest endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which has had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. V. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks" in several mines, ensuring success in the aggregate, and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services to all connected with mine or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for commission.

**SATURDAY, AUG. 22.—Holiday in the market.**

**MONDAY.—Good demand to-day for West Chiverton, at 61, 63; Don Pedro, 34, 36; Yudananutana, 42, 44; Chontales Gold, 12, 22; Chiverton Moor, 64, 7; Marke Valley, 73, 73; Great Retallack, 34, 36; East Wheaton, 31, 33.**

**TUESDAY.—Active demand for West Chiverton, Don Pedro, Yudananutana, Great Laxey, and Marke Valley, at an advance. West Chiverton, 61 1/2 to 63; Great Laxey, 17 1/2 to 17 1/2; Marke Valley, 73 1/2 to 73 1/2; Don Pedro, 34 1/2 to 35 1/2; Yudananutana, 42 1/2 to 43 1/2; Chiverton Moor, 64 1/2 to 65 1/2; Prince of Wales, 33, 35; Great Vor, 13 1/2 to 15 1/2; West Frances, 27, 29; Wheal Seton, 50 to 55.**

**THURSDAY.—Marked moderately active. Prince of Wales advanced to 35s. 36s. West Chiverton, 61 to 62; Don Pedro, 34 to 35; Yudananutana, 42 to 43; Marke Valley, 73 to 73 1/2; Chiverton Moor flat, at 6 1/2 to 6 1/2.**

**FRIDAY.—Settling-day, and not much doing. Prince of Wales in demand, at 36s. to 38s.; West Chiverton, 61 to 62; Yudananutana, 42 to 43.**

**Mining Correspondence.**

**BRITISH MINES.**

**ABRAHAM CONSOLS.—J. Vivian, Aug. 27: We have not intersected any more lode in the 27 fm. level cross-cut south of shaft; we shall, therefore, suspend the driving of this cross-cut for the present, and put the men to open on the lode west of cross-cut; and if there is any portion of the lode carried south by the influence of the cross-course, have been passed through, it is more than probable they will fall in again with the part we shall drive on in our course west, and that shortly, when it is likely they will make the again.**

**BEDFORD CONSOLS.—J. Mitchell, Aug. 27: The new south lode, in the middle adit level, west of cross-cut, is about 2 1/2 ft. wide, composed of spar, a great deal of munde, flockan, white iron, and a little copper-ore. In the eastern end we have intersected a small cross-course underlying cut, and have cut into the lode east of it, and north of the flockan, which is very hard, and, as far as seen, for 2 1/2 ft. wide, is composed of spar, white iron, munde, spots of lead and copper-ore, and letting out a little water. It is a strong, kindly lode.**

**BRONFLOYD UNITED.—T. Kemp, Aug. 26: The new shaft is down 11 fms. under the 63. The part of the lode now carried by the shaft is composed of spar and blue slate, strongly intermixed with lead ore; we have 1 fathom yet to sink for a good lode. The lode to the west of cross-cut, in the 63 is worth fully 2 tons of ore per cubic fathom. The stopes at the 52 contribute to look well, and is also producing 2 tons of lead ore per cubic fathom. The stopes west of winze, above the 52, is worth 20 ects. of ore per cubic fathom. The part of the lode opened on in the 40 end west is composed of blue slate, intermixed with munde and spots of ore. I am pleased to say that we have now a better supply of water, and our driving and dressing will proceed with regularity.**

**BRYNN GWILOG.—J. Harper, Aug. 26: The lode in the 85, west of Bramwell's shaft, is small and unproductive; ground hard for progress. The lode in the 75 west, although small, is looking a shade better than for some time past, and the ground shows very favourable signs for producing lead ore. The lode in the winze in bottom of this level is much the same as last reported, worth 1 1/2 per fathom. The 62 west, on Brookes's old run, is not looking so well, and I have put the men to cross-cut to the north to see if we can find another new run of ore. Lloyd's shaft is down about 11 yards below the 40 yard level, and the men are making good progress with the sinking. The tribute department throughout the mine is much the same as when I reported last.**

**CAPE CORNWALL.—R. Pryor, F. Hosking, Aug. 26: In the 100 cross-cut, driving north of shaft, the ground is strongly mineralised, being mixed with munde and spar, indicating a change. The rise in the back of the 100 fathom level, east of cross-cut, is being pushed on with all speed, and no time will be lost in making the communication to the winze sunk below the 90; the lode is of a promising character, and still producing good stones of tin. No change to notice in any other part of the mine.**

**CARADON CONSOLS.—S. Bennetts, Aug. 25: The ground in the 78 north continues good; no further branches seen since last noticed. The lode in the 78 west is slightly improved. In the 68 west very little lode has been taken down during the week, and consequently no change to report.**

**CEFFRYN GWYDION.—J. Pault, Aug. 26: The lode in the 56, or deep adit level east, is 4 feet wide, composed of spar, carbonate of lime, blende, and clay-slate, with good strings of lead ore. Nothing of importance has yet been met with in the cross-cut north of the 20, but we are still meeting with strings of spar, containing spots of lead ore. Nothing has been done in any of the deeper levels of late, in consequence of the water being in, by means of the extraordinary long drought; however, we have had some nice rain here these last few days, which has thrown some water into our pools, and enabled us to start the pumping-wheel again, and I hope we shall soon get the water out of the mine, and set the different bargains in full work again.**

**CHIVERTON MOOR.—G. E. Tremayne, Aug. 22: I went underground on the morning of the meeting. The engine-shaft is sunk to the 85, and the cross-cut commenced towards the lode; should the ground continue for driving as it is at present the lode will, no doubt, be reached in about three months from the present date. In the 75 east the lode is small and poor. The 75 west is driven about 30 fathoms, and just reached the change of ground similar to what they had in the level above in the cutting of the course of lead; in the present end the lode is 2 ft. wide, composed of flockan, soft decomposed quartz, with munde, blende, and lead, of the latter worth 4 ects. per fm. I think in the course of a few days this end will considerably improve in value; the water has much increased in the last few feet drying, as soon as they touch the principal shoot of lead it will drain a long and good piece of ore ground, which, I think, will make home to the western boundary. In a winze sinking in the bottom of the 62, there is a large, strong, well-defined lode, and worth about 15 ects. of lead per fm. Two stopes in the back of the 62 are looking very well, from which their principal samplings are now coming; as soon as the ore is met with in the 75 west they will be in a position to considerably increase the returns. The 65 east is driven about 45 fms.; in the present end the lode is 4 ft. wide, composed of beautiful white friable spar, with flockan, munde, and fine lead interspersed throughout; this is really a splendid-looking lode, going back right parallel with West Chiverton Mine. It is my opinion that the general prospects of this mine never looked better than at the present time. The flat-rods will be fixed, and made complete to the north shaft, in four weeks from this time, when sinking will be commenced with all speed.**

**COLQUITE AND CALLINGTON UNITED.—Thomas Dolge, Aug. 24: The 20 fathom level end is looking well; the lode is 5 feet wide, composed of munde and silver-lead, of the former about 4 tons per fathom. The ground is in more decomposed state, being soft white evan. The men will drive this month 7 fms. if this ground continues, and I see no reason why it should not. After that there will be 3 fathoms more to drive to Colquite shaft; the lode here is increasing in size; this must meet with the same shoot that is in the 20 fathom level end as it goes down.**

**CUDDRA.—F. Puckey, A. Cundy, Aug. 25: In the 142, west of Walker's shaft, we are driving in the killas by the side of the lode, and the ground is still moderately easy for exploring. The lode in the stopes in the back of this level, east of the winze, is 8 ft. wide, composed of quartz and peach, and producing some good work for tin, worth 147, per fathom. In the 130 fm. level end driving west the south or the part of the lode has made a splice, and has changed in character from peach to hard capel. The tin part of the lode is now apparently making still further north, which is not yet cut into, and before doing so we intend putting up a rise in the back from the present end in the killas, to communicate with the winze sinking below the 100 as soon as possible to ventilate the 130, and to open out more ground for stopes, which will then enable us to increase our returns of tin. In cutting out and stopping the lode behind the end at the 130 we find the lode to be 10 ft. wide, composed of quartz and peach, mixed with capel, but not quite so good for tin as when last reported on; now worth 307 per fathom. The winze sinking below the 100 west is down 6 fathoms. In consequence of the lode in the winze being hard, and letting out much water,**

**our progress in sinking has been very slow. To facilitate the sinking of the same we have commenced sinking in the killas under the lode, in order to effect a communication with the 130 fathom level as rapidly as possible, which we hope to accomplish in about six weeks. The lode in the western stopes, in back of the 100, is 8 ft. wide, composed of gossan, peach, and iron, and worth for the 127, per fathom. In the middle stopes the lode is 6 ft. wide, and worth 87, per fathom. In the eastern stopes the lode is 8 ft. wide, and worth 127, per fathom. We have five tribute pitches—three working on 11s, and two at 12s. in 11, and the men getting fair wages.**

**DEVON AND CORNWALL UNITED.—T. Neill, Aug. 25: The lode in the 22 west is looking very promising. We have no other change to notice. We shall sample on Friday about 90 tons of ore.**

**DUKE OF EDINBURGH.—W. B. Collom, C. F. Collom, Aug. 27: Since we have commenced operations we have cleared and secured the deep adit, completed laying the tramroad, and driven the cross-cut west of great rise south 7 fms., through a sound mineral killas, such as can only be seen accompanying the richest deposits of ore yet discovered. We have opened the pass to the high back, and commenced driving a 45 fathom level west, on the main lode, towards the engine-shaft, on tribute at 10s. in 11; here the leader part of the lode is at present small, but opening larger, and containing very rich ore.**

**EAST CARN BREA.—Isaac Richards, Aug. 20: Thomas's engine-shaft has been sunk below the 90 fathom level 1 fm. 3 ft., the lode proving 1 1/2 foot wide, composed of quartz, capel, fluor, munde, and a little tin and copper ores. A tip-plate has been cut in the 90, and made complete, and the men are now engaged cutting cistern-plate and putting in timber, &c., necessary to the future deeper sinking below this point. Thomas's Engine-Shaft, No. 3 Lode: The 90 east has been extended 4 fms. 5 ft. 6 in., the lode proving 1 ft. wide, consisting of capel, quartz, munde, and a little copper ore. The 90 west has been extended 5 fms. 4 ft. 11 in., the lode proving for the first 3 fms. 1 ft. wide, when it became larger, and still maintains its size (1 1/2 foot wide), consisting of capel, quartz, munde, and saving work for copper and tin ores, and is promising improvement. The 80 west has been extended 5 fms. 5 ft., the lode proving for 2 fms. in length 2 ft. wide, and worth 1 1/2 ton of copper ore per fathom. From this point to the furthest point reached it produced saving work of tin and copper ores. The 80 east has been extended 8 fms. 4 ft. 6 in., the lode proving for the first 2 fms. 2 ft. wide, and worth 2 tons of copper ore per fathom. From this to the furthest point reached it is 1 ft. wide, composed of capel, quartz, munde, and a small portion of copper ore. This drivage is suspended, and the lode proving for this depth 1 1/2 foot wide, composed of capel, quartz, munde, and saving work for copper and tin ores, and is promising improvement. The 80 west has been extended 5 fms. 5 ft., the lode proving for 2 fms. in length 2 ft. wide, and worth 2 tons of copper ore per fathom. From this point to the furthest point reached it produced saving work of tin and copper ores. 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which is underlying west about 1 ft. in a yard, until the end of the month, at 31. 10s. per yard; the men to fill and land all the stuff, pay for drawing, &c. I have set to four men to drive the 80 yard level, west of Bright's shaft, at 10s. per yard, and 8s. per ton for ore; the men to pay all costs, as usual; the ground in the present end looks very promising for the production of ore.

**NEW BIRCH TOR AND VITIFER CONSOLS.**—William Skewis, Richard Trevetheren: Hambley's engine-shaft is down 13 fathoms below the 48; at this point the lode is 1 ft. wide, containing a little tin, but not in paying quantities. We shall now drive a 60 fm. level west for about 6 ft., and then take out the penthouse, case and divide the shaft, in order to get the kibble down as quickly as possible. This work in connection with the fixing of the lift, &c., will, we think, require fully another month to complete. The winze in the bottom of the 48 west is down the required depth to meet the 60, west from the shaft, and, therefore, we purpose to drive east to meet it at once. The lode here is worth about 3s. per fathom. There is no other tutwork on this lode at present.—**North Lode:** The new shaft is down about 12 fathoms below the 48; the lode is from 12 to 18 in. wide, containing good stones of tin. The lode in the winze in the bottom of the 48 is worth from 40 to 50. per fathom; this winze is down 11½ fms., and as soon as down 7 ft., more we shall also drive east towards the new shaft. There is no other change to notice.

**NEW CLIFFORD.**—J. Michell, Aug. 27: We continue to make good progress with the driving of both cross-cuts in the 50 fm. level, the stratum in each clay slate or killas, and of a very congenial character, being highly charged with mineral, which is a good indication that the lodes when intersected will be rich for copper ore.

**NEW CROW HILL.**—A. Kent, T. Trelease, Aug. 25: In the sump-winze, sinking under the 70, we are making good progress in sinking, the ground being easy, and the water not increasing. The pitch in the back of the 55 is looking pretty well, and producing some good work. In the back of No. 2 stopes we have four men rising, but the lode here is poor at present. In the 22 there is no change to notice. Our surface operations are working satisfactorily, as our surface water has very much increased by the heavy showers we have had.—**Wheal Louisa:** At the engine-shaft we are sinking at a moderate rate, at 16s. per fm. In the winze sinking under the 60 we have cut in south, and in so doing have discovered a splice of lode, which is producing excellent stones of ore; to say the least, this place is looking very promising, and we hope for further improvement shortly. In the 60 east we have been cross-cutting north, the lode having been heaved by a slide, but in the past week we have succeeded in cutting it again; it is quite strong and regular, with a little improvement, compared with the western side of the slide, and is now producing stones beautifully spotted with lead ore. Our pitwork is in good working order.

**NEW EAST RUSSELL.**—J. Gifford, Aug. 25: On Saturday last the following bargains were set:—The 20 west to drive by two men, by side of the lode, stent 1 fm., at 47. 10s. per fm. In the deep adit west we have met with a small cross-course, which we think has heaved the main part of the lode north, and we have put the men to cut in that direction to prove it.—**North and South Lode:** The 20 south to drive and stope by four men and four boys, at 5s. per fm. for the end, and 7s. in 11. tribute; lode in present end 2 feet wide, worth 12s. per fm. We shall sample on Friday next about 34 tons of good quality ore.

**NEW GREAT CONSOLS.**—R. Pryor, T. Bennetts, R. Trathen, Aug. 24: Ellis's engine-shaft men in the past week have been busily engaged in cutting ground at the 50 fm. level for catch cells, and repairing the whim-shaft, the casing and dividing having been taken out in several places in order to send the large H and door pieces down. The necessary preparation in order to send down the remainder of the 16 and 14-inch main rods in the 74 is being pushed on with all possible speed, and no time will be lost in carrying out this work so as to fork the mine to the bottom. The tribute pitches are looking much the same as for some time past, and the tributes continue to break fair quantities of copper ore, the dressing of which is carried on with all energy. All surface work is going on very satisfactorily.

**NEW TRELEIGH.**—S. Michel, Aug. 26: The lode in the winze sinking below the 70, west of the new shaft, never looked better than at the present time, worth 3 tons of ore per fm.—a very promising lode. There is a good branch of ore forming in the leader part of the 70 fm. level end west, but the ground is wet and troublesome about the vug that was spoken of last week, which has rather retarded our progress for the past few days, but I find the men are to-day making better headway. In order to prove the continuation of ore in the bottom of this level, I have taken the men from the end, and put them to sink a winze about 7 fms. west of the former one, where I am very pleased to see the nature of the lode, and there is no doubt by next week we shall be able to report as to its value. The new shaft, if all be well, will be down 8½ fms. by Saturday next, and I have much pleasure in saying that the lode never looked better than at this time, worth 3 tons of ore per fm.; it is 2½ ft. wide, of a lasting character. Our prospects for future results were never so good as they are at the present time. In conclusion, I would remark that our dispatch in laying open ground is different to that in and above the slide; here the rock has become more compact, and more favourable for the production of copper.

**NEW WESTMINSTER.**—W. Kitto, Aug. 27: We continue to sink Thompson's engine-shaft with twelve men, and making fair progress. No lode has been taken down in the shaft for the last 3 fms. sunk, and will, therefore, remain untouched until we reach the next level. We can see ore in the lode, but its present value I cannot determine. There is no change of importance in the 70 fm. level end east since my last; ground a little more easy. We have commenced to clear the 60, east of Thompson's shaft, with view of proving the eastern section of the mine below those very extensive works made by the ancients, and where we consider there is every reason to expect success. Nothing else new.

**NEW WHEAL LOVELL.**—C. Bawden, J. Priske, Aug. 27: The lode in the 42, east of Hill's engine-shaft, is at present disordered by a slide. The lode in the 42, east of Lanyon's shaft, is worth at present 30s. per fm., and is again improving. A rise has been put up in back of the level 3 fms., the lode in which is worth 50s. per fathom. Lanyon's shaft is down about 4½ fms. below the 42, the lode in which is 5 ft. wide, worth 40s. per fm. for its length, 10 ft. Colonel's shaft is being sunk below the 20 in a lode worth 20s. per fathom. The 20 east is poor. The mine is opening out very well, and bids fair to become a permanently productive property.

**NEW WHEAL TOWAN.**—Richard Pryor, Aug. 26: We are desuing the lode in the adit level driving west, but the ground has become a little more favourable, and the men are making fair progress.

**NORTH DOWNS.**—F. Pryor, J. Grenfell, Aug. 25: In the 85, west of King's shaft, the character of the ground is very much improved in appearance for copper ore; it is letting out more water than it has since we have been driving it, and should the ground continue we shall be able to drive 4 fms. a month; this is important as it will enable us to get under the ore gone down. In the 60 much sooner, in addition to a better chance of meeting with another shoot of ore in this channel of ground. In the cross-cut driving south at the 60 we have met with a branch similar to that met with in the 50 previous to intersecting the lode; it produces a little ore but we believe the main part of the lode to be still further south. Two stopes in the back of the 62 each worth 12s. per fm. A rise in the back of the 50 is worth 10s. per fm.; this is in the killas over the elvan. There is no change to notice in the ends since last report. Our tribute pitches, on the whole, are producing fair quantities of ore.—**Wheel Peever:** We have a tribute pitch working in this part of the mine in the back of the 40, and we hope to draw a parcel of tinstuff from there by the latter part of this week, when we shall be in a position to say more about it.

**NORTH POOL.**—J. Vivian and Son, F. Clymo, Aug. 27: **Main Lode:** In the sump sinking under the 40 we have a good branch of copper ore on the south side of the lode, varying from 3 to 4 in. wide, and which looks as if it would form a junction with the lode in sinking a few feet further; should it do so, it will probably be attended with considerable improvement in the lode. In the 40, east of sump, we have a promising branch of copper ore, 2 or 3 in. wide, and the appearance of the other part of the lode, and of the rock which it is traversing, is highly favourable for copper; we are driving at this point towards the great mass of copper ore which was worked by the first company owning the mine. The stopes in back of the 40, west of sump, is yielding 2½ tons of copper ore per fathom.—**Ballarat Lode:** In the 40, west of Ballarat shaft, the lode is composed principally of soft quartz, sprigged with mudi, blonde, and yellow copper ore.

**NORTH RETTACK.**—G. R. Odgers, J. Harris, Aug. 22: The lode in the No. 1 boundary shaft, sinking below the 10 fm. level, is of much the same size as we stated in our report for Wednesday, and producing good stones of strong silver-lead. There is not much water in this shaft, and the men are making good progress with the sinking.

**NORTH ROSKEAR.**—J. Vivian and Sons, Aug. 27: We have sampled 98 tons of copper ore. We have still a good lode in Pearce's shaft, and I think it will improve. We have also a promising lode in the 205, east of Pearce's shaft. In the trial winze sinking under the 230, west of Doctor's shaft, the tin lode continues of undiminished value and promise. We have been busily engaged with the necessary preparations for sinking Doctor's shaft, and we shall now make rapid progress in clearing the shaft below the 20, and in a few days be ready to commence sinking.

**OKEL TOR.**—No. 1 winze, in the bottom of the 65, on the south lode, will yield for its length (12 feet) 10 tons of ore per fathom; and No. 2 winze will yield 6 tons of ore per fathom. The lode recently intersected in the 65 fm. level cross-cut is looking very promising indeed, and we are breaking some good work from it; there is every appearance of the lode becoming very productive against the south wall.

**OLD GUNNISLAKE.**—H. Rickard, Aug. 26: There is nothing new to call for any remark in either of the cross-cuts; the ground is equally favourable for driving. The tribute pitches are much as usual. On Friday next we shall sample about 27 tons of copper ore.

**PEDN-AN-DREVA UNITED.**—Wm. Tregay, J. Thomas, Aug. 22: **Sump:** The summen have this week been employed securing the collar of engine-shaft, the timber there having shown indications of failure, consequently no progress has been made in the 140 fathom level west end. In the 130 west we have not yet reached the footwall, which is large, letting out much water, and producing stones of tin. In the 130 west winze the lode is worth 10s. per fathom. In the 120, east end, the lode is worth 12s. per fm. In the 100, east of Bragg's cross-course, the lode is still unmetched, and the ground hard, worth 6s. per fathom. In the 68 east we are getting away large quantities of tinstuff, still of low produce.—**Cobbler's:** In the 120, west end, the lode is still unproductive. In the stopes in the bottom of this level the lode is worth 10s. per fathom.—**North Mine:** In the 55, west of cross-course, stopping on tribute, the lode is worth 20s. per fm. In the 20, east of cross-course, stopping on tribute, the lode is worth 10s. per fm. In the 20, east of cross-course the pitches are looking well, and yielding good quantities of fair quality tinstuff. No other change to report.

**PENHALLS.**—S. Bennetts, Wm. Higgins, Aug. 21: The 60 east is still unproductive, but lode looking a little more promising. The diagonal shaft has to be sunk a few feet more for fork, ere we commence to drive. The 60 west is producing occasional good stones of tin. The new lode in the winze below the 50, east of cross-course, is worth 10s. per fm. In the 50 north, west of cross-course, tin and capes are making their appearance, therefore we expect the lode is not far off. The 45 east is worth 8s. per fm. The 44 east, on Pink lode, is not so productive as it has been. The 40 west, on same lode, continues to produce saving work, but not sufficient to value. The winze below the 40, on new lode, is worth 10s. per fm. At the Pink mine there is nothing further discovered since last report. The stopes now at work there at the 30, west of Shop shaft, is producing good quantities of fair quality tinstuff.

**PENHALE UNITED.**—R. Pryor, H. Bennetts, J. Pryor, Aug. 25: The lode at Phillips's engine-shaft, sinking below the 90, is fully 2 ft. wide, producing good stones of silver-lead—a very promising lode, and indicating an improvement shortly. The lode in the 90, driving north of shaft, has greatly improved, being 2 ft. wide, now worth 1½ ton of silver-lead per fathom, with a good appearance.

In this level, south of shaft, we have met with fair ground, which filled the level for several fathoms behind the end; all the stuff that is coming from this run will pay well for dressing, and in which we find some splendid rocks of lead; this we regard as an important feature, being just under a hard bar of ground driven through in the level above. The lode in the 80, driving south of shaft, has also improved, being 3 ft. wide, producing 3 cwt. of silver-lead per fathom, and has a very promising appearance.—**Hall's Shaft:** The men at this shaft are busily engaged clearing the 80 fm. level south, in order to effect a communication, as well as to send the water back to Phillips's engine-shaft, and when completed it will save us 10 fms. in drawing the water through this shaft (Hall's), which is an important item.

**PERRAN SILVER-LEAD.**—M. Wasley, Aug. 25: Operations were resumed last week on this extensive property. Next week we shall commence the shaft surface to communicate to the level driven in from the sea. We are clearing up the adit and shaft below the Farmhouse, where the nature of the lode will soon be seen in this part of the sett. So far, however, it presents the same kindly appearance as the back of the lodes in the other parts of the mine. It will depend on future prospects how far we may extend in this quarter. I have purchased some timber, tackle, rope, kibbles, blacksmiths' bellows and other materials cheap, and have carried greater part of them on the mine, so that we shall very shortly be ready to commence the shaft before mentioned.

**PRINCE OF WALES.**—J. Gifford, W. Gifford, Aug. 27: In the 65 east the lode is at present large, but poor. In the 65 west the lode is 2½ ft. wide, worth 8s. per fathom. In the 55 east the lode is 2 feet wide, worth 5s. per fathom. In the 55 west the lode so far as seen is worth 10s. per fathom. Two stopes in back of the 55 east are worth on an average 25s. per fathom each. The stopes in back of the 55 west is worth 15s. per fathom. In the 45 west there is no change since the general meeting. The stopes in the 45 west, on the supposed new lode, is worth 15s. per fathom.

**PRINCESS OF WALES.**—G. Rickard, Aug. 26: During the past week, in driving the north adit level west from cross-cut, on the north or footwall part of the lode, we have broken some very pretty stones of black and yellow copper ore, which is at present looking exceedingly promising. The engine-shaft is now down 6 fms. 3 ft., in a good looking channel of killas. The men are working spiritedly, and hope to complete their bargain (10 fms.) in three weeks from this date. We have commenced to take out the foundation for engine-house, also raising stone, &c., in order to get the masons to work as early as possible.

**REDMOOR.**—T. Taylor, Aug. 27: The lode in the 25 fm. level winze is about 18 in. wide, producing about 3 cwt. of black tin ore to the fathom; the ground is very soft. There is no change in the stopes in the back of this level. In the 12 east the lode is 3½ feet wide, worth 12s. per fathom for copper ore and tin. We are now making the grass shaft on the run into a horse-whim hauling shaft; we have hitherto pulled from this shaft by manual labour. We are getting on very well with the furnace at work, and the tinstuff is proving as reported, and we are getting on with the killas as fast as possible.

**ROARING WATER.**—H. Thomas, Aug. 25: The cross-cuts are progressing favourably, with six men in each end, and from the change of ground in both places I think very soon I shall have something of importance to communicate—very probably good lodes.

**ROSE AND CHIVERTON.**—J. Evans, Aug. 27: The new lode presents a fine appearance going south, and I should not be surprised at any time to cut into a bunch of lead.

**ROSECLIFF AND TOLCARNE.**—R. Pryor, Aug. 26: No change in the 50 fm. level, driving east of cross-cut, since our last report. The lode in the old engine-shaft, sinking below the 30, is 2½ ft. wide, still worth 2 cwt. of silver-lead per fm., and promising for improvement. The lode in the winze sinking below the 30, west of old engine-shaft, is still disordered by the branch which crossed the winze, but, judging from its appearance and character, we fully believe it will shortly change for the better.

**REDTRIDGE CONSOLS.**—James Richards, Aug. 27: The ground in the 152 fm. level cross-cut, north of Hitchins's shaft, continues favourable, and good progress is being made. In the 140 north, and east of the eastern cross-course, the lode is not yet reached; the ground is favourable for progress.

**SOUTH CONDURROW.**—J. Vivian and Son, W. Williams, Aug. 22: In the 98, south from King's shaft, we have met with some difficulty in cutting into the lode, there being a soft decomposed flockan on the north wall of the lode, which is being forced out by the pressure of the water, and in consequence we are obliged to advance very cautiously, and to use strong and close timber; we think, however, that we shall be able to report the nature and size in our next report. In the 82, west of King's shaft, the lode is 1 foot wide, composed principally of flockan and iron. In the 71 west, the lode being disordered, we have to day determined to drive south, to intersect the tin course. In the 61 west we are driving east and west of the cross-cut on the south side of the tin course, and are thus laying open a valuable section of tin ground for stoking; before, however, we can stoke it to the best advantage we must sink a winze from the 61 to the 61 fm. level, to afford ventilation and other facilities for breaking the tinstone in large quantities; we have to day commenced this operation. In the stopes in back of the 61, in the same tin formation further east, we continue cutting through the lode southward, and find the tinstone improving in quality. In Vivian's shaft, sinking under the 51, the lode is 1½ ft. wide, and producing a little black copper ore disseminated throughout with chlorite. In the 51, west of Vivian's shaft, the lode is 3 ft. wide, composed principally of chlorite, containing mudi and occasional lumps of black copper ore. We know that there are also parts of the lode south of the drivage. How large it is I cannot say: it seems to be increasing in size as we increase in depth. It will be seen that our driving east of the 51, south of the 51, is only being carried about 2 ft. wide, worth 8s. per fathom. The new shaft is down about 4½ fms. below the 30, and the ground is still favourable for sinking.

**WEST PRINCE OF WALES.**—W. C. Cock, Aug. 25: The south lode, in the south engine-shaft, is the same in character as described in my last, consisting of flockan, white iron, mudi, and good spots of copper ore. The only difference is that the ore towards the eastern end of the shaft is a little softer; it is, indeed, a most promising lode, and I have no doubt that ere long it will be found very productive. I am quite pleased with the recent change in its appearance. In the 16, at the north engine-shaft, we have been cross-cutting the main lode during the past week; the cross-cut and the part of the lode being carried in driving on its course shows it to be 12 ft. wide at this point, and I am not certain that the north wall is yet reached. I am inclined to think that it is not, as there is a great quantity of water coming from the northermost point reached; there is, however, sufficient done to prove the lode to be one of unusual size. It consists of spar, capel, flockan, iron, &c. We know that there are also parts of the lode south of the drivage. How large it is I cannot say: it seems to be increasing in size as we increase in depth. It will be seen that our driving east of the 16, south of the footway shaft, is 2½ ft. wide, composed of tinstone of low quality, and presenting a better appearance than for some time past. We stated in our last report that the tribute pitches in the back of the deep adit were working at 7s. 6d. in 17, which was an error, the tribute being 6s. 8d. in 17.

**WEST MARIA AND FORTESQUE CONSOLS.**—William Skewis, J. Donnal, Aug. 25: West Maria Lode: The lode in the 60, east of Maria engine-shaft, will be taken down in time for next week's report. The ground by the side is of a favourable character for the production of copper, and we expect an improvement in the lode when taken down. The lode in No. 1 stope, in back of this level, is worth 10s. per fathom, and in No. 2 stope 7s. per fathom. The lode in the 59 east is worth 30s. per fathom. The lode in the rise in back of this level is worth 20s. per fathom; and in the stope it is worth 20s. per fathom. In the 40 east a part of the lode is only being carried, about 2 ft. wide, worth 8s. per fathom. The new shaft is down about 4½ fms. below the 30, and the ground is still favourable for sinking.

**WEST PRINCE OF WALES.**—W. C. Cock, Aug. 25: The south lode, in the south engine-shaft, is the same in character as described in my last, consisting of flockan, white iron, mudi, and good spots of copper ore. The only difference is that the ore towards the eastern end of the shaft is a little softer; it is, indeed, a most promising lode, and I have no doubt that ere long it will be found very productive. I am quite pleased with the recent change in its appearance. In the 16, at the north engine-shaft, we have been cross-cutting the main lode during the past week; the cross-cut and the part of the lode being carried in driving on its course shows it to be 12 ft. wide at this point, and I am not certain that the north wall is yet reached. I am inclined to think that it is not, as there is a great quantity of water coming from the northermost point reached; there is, however, sufficient done to prove the lode to be one of unusual size. It consists of spar, capel, flockan, iron, &c. We know that there are also parts of the lode south of the drivage. How large it is I cannot say: it seems to be increasing in size as we increase in depth. It will be seen that our driving east of the 16, south of the footway shaft, is 2½ ft. wide, composed of tinstone of low quality, and presenting a better appearance than for some time past. We stated in our last report that the tribute pitches in the back of the deep adit were working at 7s. 6d. in 17, which was an error, the tribute being 6s. 8d. in

In the 50, east of the rise, west of Roger's shaft, is worth 4*l.* per fm. The lode in the 20, west of Bolitho's, is opening tribute ground.—North Russco lode: The lode in the 160, east of Bolitho's, is worth 3*l.* per fm. The lode in the 160, west of Bolitho's, is worth 5*l.* per fm. The lode in the 150, east of Bolitho's, is worth 3*l.* per fm.—New Lode: The lode in the 140, east of the cross-cut, is worth 3*l.* per fathom. The 150 cross-cut, south of Kitty lode, and the 140 cross-cut, south of North Russco lode, are without change to notice.

WHEAL SPARNON.—W. Tregay, Aug. 22: The north lode, in the 20, west of cross-course, is producing stones of copper ore, and promising for improvement on getting clear from the cross-course; ground favourable for driving.

#### MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,  
Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Among recent specifications of inventions are the following:—

Mr. T. WHITWELL, Stockton-on-Tees, has patented improvements in furnaces. He claims the constructing of a permanent gunge in the flue necks of puddling, boiling, heating, and other furnaces.

Mr. JOHN ROWE, of Wrexham, has patented improvements in the construction of miners' safety-lamps. The object is to render miners' lamps more secure and durable, and less liable to be opened than safety-lamps of the ordinary construction. Instead of the ordinary screw to connect the cap to the bottom of the lamp he makes a groove in the bottom, and studs in the cap, fitting together in the manner of a bayonet joint; and he applies an india-rubber or other elastic ring beneath a metal ring between the cap and bottom, to form an air-tight joint. A similar joint is applied between the flange of the wick tube and its seating. The patentee also claims a lock for safety-lamps, which he thus describes:—To the cap of the lamp is screwed a tube, in the outer end of which is a key-hole for the admission of the key, which takes into a recess in the end of the locking screw, and this key-hole is so small that the screw cannot be drawn out through it. When the lamp is locked it is impossible to unlock it with any instrument except the proper key, which is made of a piece of steel wire, with a cross pallet, and with a crank to turn it round, or otherwise.

Mr. H. BESSEMER has patented an invention relating to the treatment of crude or cast iron, and in the manufacture of malleable iron and steel. According to his invention he proposes to treat molten, crude, or cast iron with nitrate of soda, or other solid oxygen-yielding substance, in a vessel mounted on trunnions, and provided at one end with a chamber, or case, to contain such nitrate or substance, and at the other end with a mouth, for supplying and delivering the iron, and for the escape of gases during the conversion. The metal poured in at the mouth does not come in contact with the nitrate or other substance, and it may be tipped to carry the same below the molten metal, and again tipped to discharge the metal from the mouth. Also in treating molten, crude, or cast-iron, the top of the case, or chamber, is closed with a perforated fire-tile or slab of refractory stone. Molten, crude, or cast-iron is treated with nitrate of soda, or other fusible oxygen-yielding substance, by forcing it in jets into and amongst the metals. Heated air or steam may be forced through the same tuyeres or orifices as those for admitting the liquid nitrate, so as to heat them before the nitrate is supplied, and exclude the metal from them before and after its application. The nitrate of soda, or other substance yielding oxygen, may be conveyed in a powdered state into and amongst the metals by jets of carbonic acid gas, or other gas incapable of yielding oxygen to the molten metal. Improved apparatus is also claimed relating to modifications of the converting vessel used in the Bessemer process.

#### THE INDUSTRIAL RESOURCES OF VENEZUELA.

At all the recent international industrial exhibitions Venezuela has occupied a prominent position amongst the representatives of the South American Republics, and the Government have now taken a very wise step, by which they will secure the development of Venezuelan resources with an amount of energy that was previously scarcely hoped for. A grant of no less than 240,000 square miles of land has been made to Dr. H. M. Price, and others, as representatives of THE CHARTERED AMERICAN, ENGLISH, AND VENEZUELA TRADING AND COMMERCIAL COMPANY, with a view to secure the colonisation of all vacant lands in the State of Guayana and the district of Amazonas. The terms of the concession, which are fully set forth in a handsome little volume<sup>2</sup> just issued by the company, are highly favourable—the company is to enjoy the exclusive right to mineral and vegetable products found on the land, and various privileges in the shape of exemption from import and export duties, by which steel, iron, machinery, &c., can be taken in free, and cotton, and tobacco exported; the company will likewise have the right to establish factories, and construct the necessary railroads, telegraphs, and canals, whilst the emigrants are to be secured perfect freedom of religion, of press, and of speech, and to possess the right of being represented in Congress, according to the census, which is to be taken every five years.

With regard to the attractions offered to intending emigrants and settlers, it will suffice to state that the changes of season are scarcely perceptible, and vegetation sprouts forth perpetually; on the coast the temperature ranges from 80° to 90° Fahr. the year round; and on the table-lands the variation does not exceed 10°, from 70° to 80° Fahr., and on the plains of the Orinoco the air is cooled by rapid evaporation. The flora of the country is one of the richest in the world. From the level of the sea to the height of 3300 ft. extend the regions of the palms, mingled with which are cardona and eatti of sandalwood forms; sensitive mimosa, pine-apple or bromilla, the coy-tree, which yields nutritious milk and cheese, and many other plants and fruits. Among the large timber trees may be mentioned the baumha, the bombax ceiba, mahogany, live-oak, sarsaparilla, capaiba, dragon's-blood, and various other drugs, besides cancho or India-rubber, are all produced in the same region. Gold, silver, copper, tin, coal, soap, asphalt, petrolium, salt, alum, &c., have been found; the coal, which is of brilliant quality, and said to be equal to the best English Cannel coal, is abundant in many places. At Araya, facing the sea, are extensive salt mines, which yield the purest salt.

The working of the mines of Venezuela has been much neglected, but the existence of metalliferous veins in Venezuelan Guayana cannot be doubted—grains of gold are found in the whole mountainous territory of Venezuela, mines of gold and silver were worked at the beginning of the Conquest, and Indian gatherers have sometimes found lumps of gold 15 or 16 ozs. in weight. The Spaniards, in the year 1551, wrought the gold mine of Buria, which was the cause of the foundation of the town of Barquisimeto. The mines of Los Teques could not be peacefully wrought till the defeat of the Caque Guayancur, a celebrated chief of the Teques, who long contested with the Spaniards the possession of the province of Venezuela. From several geological indications there exist two groups of auriferous alluvial land—one between the sources of the Rio Negro, the Vaupes, and the Iquara; and the other is situated between the sources of the Essequibo, the Caroni, and the Rupunero rivers. The gold mines of Caraté and Guasipati, on the Caroni River, a short distance from Las Tablas, have lately been discovered; they are rich in gold, both in abundance and quality. The quality of the gold is 24 carats, a quality that neither California, nor Australia possess. The deposits of iron and copper are also very great in Venezuelan Guayana, but thus far undeveloped. The copper is of an excellent quality, and is even preferred to that of Sweden and Coquimbo (Chili). Mercury and lead have been found, but not yet worked. From these facts it will be readily admitted that there is great justification for the opinion that in the region referred to Anglo-Saxon colonists must prosper, aided, as they will be, by industry, energy, skill, and a determined purpose.

<sup>2</sup> "The Emigrant's Vade-Mecum, or Guide to the 'Price Grant' in Venezuelan Guayana." London: Tribner and Co., Paternoster-row.

COAL IN INDIA.—The consumption of native Indian coal is rapidly increasing—its value as a steam coal being fully recognised wherever it has been adopted. In the Bengal Presidency there are 1400 miles of railway, and upwards of 100 steamers employed in inland navigation—all using Indian coal, which is found to be more economical than English. The price of best quality Raneegunge coal at Calcutta is 10 rupees per ton, being only about one-third the price of English, so that the difference in quality (Raneegunge coal producing about three-fourths the useful effect of English coal) is far more than compensated. Some of the Indian coal is quite equal to the best English or Welsh, but as usually sent into the market the imported coal is decidedly the best. As the mines are within 100 miles of Calcutta, and coal is easily conveyed by rail, Raneegunge coal is more readily used than the better sorts, which are not so easily procurable. The workable seams in the Raneegunge mines are seldom more than 100 ft. from surface, fire-damp is unknown, and ventilation is so easily arranged that open lights can be invariably used. The pumping and hoisting are generally done by steam power, but in the small pits, worked by natives, guns, worked by women, are usually substituted. The cost of coal at the pit's mouth varies from 4 to 6 rupees per ton, all costs included. The height of the coal country about Raneegunge varies from 250 to 300 feet above the level of the sea. The seams in the mines of the Bengal Coal Company's first pit, which is now completely worked out, were two important beds of 8 and 9 feet respectively; the latter of these was only 57 feet from the surface. This mine is easily worked, the dip being very slight, and the mine near the terminus at Raneegunge added very much to its value. The coal is wrought by natives, who are paid by piecework, varying according to situation.

MINING IN NEVADA.—The new Truckee district, to the north of Truckee River, towards Pyramid Lake, which caused considerable excitement some three years since, will now be opened out. The ores are all argentic galena, and many of them are very rich, but heretofore the country has been almost inaccessible, on account of its desert character and roughness. The Central Pacific Railroad now passes within 6 or 7 miles of some of the principal leads, and the ores may now be brought to the railroad at a trifling expense, and shipped to San Francisco for smelting. An average specimen of argentic galena from the Imperial Consolidated Mine, assayed at Messrs. Rutherford and Co.'s Gold Mill Assay Office, yielded silver at the rate of nearly 35*l.* per ton. Much larger yields were obtained when the mines were first prospected; doubtless, however, from choice specimens. The Central Pacific Railroad Company

have 9000 men at work, and they intend to lay 20 miles of track weekly from the Big Bend eastward; locomotives are now running 24 miles eastward from Reno.

#### MEXICO AND VERA CRUZ RAILWAY.

Our correspondent from Mexico informs us that Mr. KIRKPATRICK had left that city for London, in order that in person he may more effectually lay before the board the actual state of everything connected with this promising undertaking, which suffered for a time in its interests from the change of Government, in the late war for Independence from a foreign yoke. He assures us that this enterprise, now that peace has been established throughout the Republic, is likely to become the best paying railway, except the one across the Isthmus of Panama; and he gives us his reasons, which we imagine ought to be convincing:—

1.—The present traffic is derived almost exclusively from local sources, as most merchants have their goods brought up from the coast in carts, as the break in the railway at present—that of loading and unloading three times—would occasion delay, extra expense, and breakage. As soon as the railway is finished the carting business to the city could not compete with railway prices, thereby giving an increase of income to the railway. Bullion is also taken down to the coast in carts from the same existing causes. Two-thirds of the present income of the line between the city and Apizaco is derived from the carriage of pulque, or Mexican wine, which is a daily and constant freight, without any fluctuations, as pulque is produced all the year round, and is the common beverage of the humbler classes. The average freight by carts from Vera Cruz to the city is about 20*l.* a ton during the dry season, rising to 30*l.* during the rains.

2.—Most mines in the Republic are only partially worked, as the expense of bringing machinery from England, at the present prices of freight by carts, is ruinous, and all mine owners are looking to the day with anxiety for ordering steam-engines and every class of iron from England. The price of cast-iron in the city at present is \$8 a quintal, or 35*l.* a ton; wrought-iron averages 57*l.* to 60*l.* per ton; salt, if I remember right, averages from 14*l.* to 15*l.* per ton, and is one of the staple articles of consumption in the reduction of silver ores. Were it not for the proverbial richness of Mexican mines the owners could not long continue to work them with such ruinous prices for their principal articles of consumption. The completion of this railway will cause a great increase in the working of mines, and consequently a greater amount of imports into the country; and this railway may be considered the back-bone of the Mexican Republic. Many other mining districts, which up to the present have not been worked, such as tin and copper, which exist in abundance, would be made to pay by a cheaper freight to the coast than the present one by carts. The Copiapo Railway, in Chili, derived three-fourths of its revenue from the freight of ores to the coast, and has paid 20 per cent. per annum for years. An American company has already started some copper mines and smelting-works, on the strength of cheap freights by rail to the coast.

3.—The Mexican shareholders who live in the city are a guarantee for the protection of English interests, as their direct influence with the Government and the Congress is naturally great. He hopes that the board of directors in London will not hesitate to push on the working of the road with activity.

At the Mexican Railway Company meeting, on Tuesday (Mr. R. W. Crawford, M.P., in the chair), the report stated that the traffic of the line was increasing, the receipts on the upper portion being at the rate of 22*l.* 16*s.* 7*d.* per mile per week, and on the lower section 29*l.* 1*s.* 7*d.* per mile per week. The remainder of the railway was unfinished, though in different stages of progress. In order to carry the works on and complete the undertaking, the directors proposed to raise 500,000*l.* on debentures, extending over a long period, but redeemable by annual drawings, and as a security they proposed to mortgage the nett receipts of the line from Mexico to Puebla. The report was agreed to, and the special resolutions were passed empowering the directors to borrow money on mortgage of the whole or part of the line, to fix the rate of interest, and create a sinking fund.

THE COPPER TRADE.—It may not be without interest to know that Mr. Routh, who from his position as Chairman of the English and Australian Copper Company cannot fail to be an authority upon the subject, stated at the meeting, on Thursday, that his opinion was the crisis which had affected the value of copper since 1866 had passed away, that trade generally was healthy, that with cheap money—for capital was on strike—a better state of things would ensue, and with it there was no question an advance would take place in the price of metals. The general opinion of everyone is that they had seen the bottom of the fall, and that prices would gradually recover.

ENGLISH MINING MACHINERY IN CHILI.—From the Andocollo Mines, Chili, Mr. Thomas Richards, late of the Devon Great Consols, writes that the steam-engine manufactured by the Messrs. Nicholls, Mathews, and Co., of Tavistock, has been put to work in the presence of many Chilean gentlemen connected with mining undertakings. The engine worked in good style, and gave great satisfaction to all present. The health of the manufacturers of the engine was proposed, and warmly responded to.

FRONTINO AND BOLIVIA.—The West India packet has brought a remittance on account of this company of six bars of gold, weighing 489 ozs., the whole of which (less 68 ozs. balance of the May gold) was the result of the operations at the mines for the month of June. Mr. Rouch states that he hopes to send at least a remittance of equal value by the following mail. It appears that the stamping-power is capable of returning a larger quantity of stuff than was anticipated, for 1640 tons were actually crushed in June, and 12 additional heads of stamps were all ready to go to work. It is gratifying to observe the change which has been effected in the condition of this company's affairs, and it is considered that with the facilities which now exist for returning large quantities of mineral very important results may be shortly expected.

GOLD MINING IN ITALY.—The floods which have succeeded the long drought in Italy have done some damage to the works at the Pestarena Mines; but, as will be seen by the report, which appears in another column, it is believed that the whole of the damage will be repaired, and the works again placed in an effective state, within a month. The report of the manager as to the value and capabilities of the property is of the most encouraging character. The gold obtained between the date of the last advices and the time of the interruption of the works will be received in London in a few days.

MINING IN CARDIGANSHIRE.—Referring to a communication in last Saturday's Journal, there can be no doubt that the working in connection with the Darren and Cwmsymlog Mines have been of a most reckless character, and the plans inspected by us show a want of attention not to be expected from any man experienced in mining. At the meeting held at the London Tavern in 1864 it was shown that, under the direction of Capt. Williams, the 10 fm. level had been erroneously driven, occasioning considerable loss of time and capital, and it has subsequently been discovered that the whole of the drivings on Oliver's level have been made in an equally unminers-like manner, the direction of the level being such that the more work done the greater was the distance from the lodes; hence it is concluded that the long time which has been occupied in bringing the mine into a profitable position is attributable solely to injudicious management at the mine. That Oliver's adit was not driven by the shortest course towards the old ore ground is beyond question, but it is considered preferable to forget past errors, and vigorously develop the property. Under these circumstances the continuation of discussion upon the subject could not possibly be of utility or interest, and must inevitably lead to angry feelings between the employees immediately concerned; further reference to the matter is, therefore, unnecessary.

MINING IN WALES.—The details of the general meeting of the Brynpostig Mining Company, which was held in Dudley, on Monday, under the presidency of Mr. Job Taylor, the mayor, are reported in another column. It is satisfactory to find that although the mine has been in the hands of this company for less than two years returns of ore have been made sufficient not only to meet the larger portion of the outlay upon development, properly chargeable to capital, but that the current sales leave a satisfactory profit upon the operations. The Chairman stated that a dividend would be declared at the next meeting, to be held in February. Mr. Ross (Messrs. G. R. Ross and Co.) was appointed the London representative.

#### The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, AUG. 28, 1868.

COPPER.	£ s. d.	£ s. d.	IRON.	Per ton.	
Best selected... ton	76	0 0 77	6	7 6	
Tough cake and tile	73	0 0 75	6	5 0	
Sheathing & sheets	73	0 0 79	0 0	—	
Bolts	80	0 0	6 15	0 7 0	
Bottoms	83	0 0 84	0 0	0	
Old (Exchange)... 68	0 0 70	0 0	7 5	0 9 15	
Burra Burra	89	0 0	Sheets, single.....	0 0 11 0 0	
Wire.....per lb.	0 0 10 1/2	4	Pig No. 1, in Wales.....	3 15 0 4 5 0	
Tubes	0 0 11 1/2	4	Refined metal, ditto.....	4 0 0 5 0 0	
		0	Bars, common ditto.....	5 12 0 5 15 0	
			Do. march. Tyne or Tees.....	6 10 0	
			Do., railway, in Wales.....	6 6 0 0	
			Do., Swindon, 19 <i>l.</i> 6 <i>s.</i> 6 <i>d.</i>	6 10 2 6	
			To arrive.....	10 0 0 10 2 6	
			Do. f.o.b. Tyne or Tees.....	2 9 3 2 17 3	
			Do. Nos. 3, 4, f.o.b. do.....	2 6 6 2 7 0	
			Railway chairs.....	5 10 0 5 15 0	
			" spikes.....	11 0 0 0 0 0	
			Indian Charcoal Pigs, in London, p. ton.....	7 0 0 7 10 0	
				STEEL.	
				Per ton.	
				Swed., in kegs(rolled).....	14 5 0
				" (hammered).....	14 15 0 15 0
				Ditto, in faggots.....	16 0 0
				English, spring.....	17 0 23 0 0
				QUICKSILVER (p. bottle).....	6 17 0
				LEAD.	
				Per ton.	
				English Pig, com.....	18 15 0
				Ditto, LB.....	19 0 0
				Ditto, WB.....	21 5 0
				Ditto, sheet.....	19 6 20 5 0
				Ditto, red lead.....	20 0 30 10 0
				Ditto, white.....	27 0 30 10 0
				Ditto, patent shot.....	22 10 0
				Spanish.....	18 5

Wheal Vor, 12 to 13; Herodsfoot, 39 to 41; North Crofty, 27s. 6d. to 30s.; North Roskear, 13 to 14; Don Pedro, 3 to 3½; Yudanamutana, 4½ to 4½; Rossa Grande, 16s. 6d. to 18s. 6d.; North Treskerby, 9s. to 11s.; Providence Mines, 20 to 22; South Frances, 17 to 19; Tincroft, 13 to 13½; West Frances, 27 to 29; West Seton, 150 to 160.

Marke Valley, 7½ to 7½; the levels on the Rosedown lode are worth 17 tons of copper ore per fathom in the aggregate. Wheal Bassett, 59 to 61; Wheal Buller, 5 to 7; Wheal Emily Henrietta, 29 to 31; Wheal Mary Ann, 19½ to 20½; Wheal Seton, 47½ to 52½. At Clifford Amalgamated Mine meeting a call of 27 per share was made, the balance against the company being 15,081.7. 7s. 7d. Wheal Grenville, 20s. to 25s.; in the 130 west the lode is improving; the 100 fm. level west, 12½ per fm., the lode worth 9½ per fm.; the 54 west, 15½; the back of the 66, 12½ per fathom. At Great Retallack, the lode at No. 1 shaft has improved to 4 cwt. of lead per fathom; the 20 south, 4 cwt.

The Market for Mine Shares on the Stock Exchange during the week has been dull, and the fluctuations have been unimportant. Chontales shares are steady, at 2 to 2½; St. John del Rey shares are firm, at 20 to 20½; Don Pedro shares are also rather firm, at 24 to 25; Yudanamutana shares have risen from the lowest point, and close 4½ to 4½; Anglo-Brazilian, par to ½ prem.; Capula, 2 to 2½; Port Phillip, 1½ to 1½; Rossa Grande, ½ to ¼ prem.; Pestarena shares are enquired for; Frontino and Bolivia is more favourably reported on; Javalli, ½ prem.; Central American, ½ to par. British mines have been dealt in to a moderate extent. West Chiverton, 6½ to 6½; at a meeting, held to-day in Cornwall, a dividend of 2½ per share was declared, and the report submitted was of a highly favourable character. Chiverton Moor shares have been more offered, closing 5½ to 6½, or a fall of 20s.; Great Laxey, 17½ to 17½, and very firm. Prince of Wales shares have risen to 36s., 37s.; the new lode is very promising, and the 65 fm. level is valued at 6½. North Wales mines, and lead mines generally, are in favour with investors. Minera shares are in demand, at 165 to 175. Great Rhosescmor, 4½ to 5; the lode at Ellis's is valued at 3 tons; Batters's shaft, 4 tons; the stopes in the 70 fathom level, 6 tons; and Rogers's lode, 3 tons per fathom. Glyn Alun, 6s. 6d. to 7s. 6d.; good progress is being made in the erection of the water-wheel.

IRISH MINE SHARE MARKET.—Although we cannot boast of a very active market in Mining Shares, yet prices have not suffered to any great extent. Wicklow Copper shares (2½, 10s. paid), which left off last week at about 10½, 5s. per share premium, are at 12½, 15s., fluctuated between this price and 12½, 10s., but leave off firm at 12½, 12s. 6d., or an advance of 2s. 6d. per share on the previous day's price. Mining Company of Ireland shares have been much enquired for, and repeatedly dealt in, but quotations were unsteady, and have fallen from 15½, 15s., the average price of the last few weeks, to 15½, 7s. 6d. and 15½, 5s. for cash, and 15½, 5s. for account (7s. paid), leaving off in demand. Connorree shares have on several occasions this week realised 5s. per share, but left off at 4s. 6d., with rather an increasing enquiry. Cape Copper shares rose since our last report from 12½ to 12½, 13s. 9d., thereby attracting sellers, in consequence of which this quotation has lost 6s. 3d. per share, the final transactions having taken place at 12½, 5s. to 12½, 7s. 6d. (7s. paid).

Referring, in last week's Journal, to the recent remarkable purchase of the celebrated Berehaven Copper Mines, county Cork, by a few Dublin gentlemen, a typical error makes us state that those gentlemen's relative interests were from 5 to 55 1000th parts, instead of 100th parts, as should have been printed.

At Redruth Ticketing, on Thursday, 1622 tons of ore were sold, realising 7226. 8s. The particulars of the sale were:—Average standard, 97. 9s.; average produce, 7½; average price per ton, 47. 18s.; quantity of fine copper, 127 tons 2 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
July 30 ..	2113	£ 97 15 0	7½	£ 10 0 0	12s. 1½d.	£60 13 6
Aug. 6 ..	3093	102 15 0	6½	3 13 6	11 9	58 15 0
" 13 ..	2318	105 14 0	5½	3 9 6	11 9	59 0 0
" 20 ..	3754	105 3 0	6½	4 0 0	12 5½	62 7 0
" 28 ..	1622	97 9 0	7½	4 18 0	12 5½	62 7 0
Compared with last week's sale, the decline has been in the standard 15s., and in the price per ton of ore about 1s. Compared with the corresponding sale of last month, the advance has been in the standard 11. 7s., and in the price per ton of ore about 1s. 9d.						

The following dividends have been declared during August:—

Mines.	Per share.	Amount.
Minera .....	£6 0 0 .....	£10,800 0 0
West Chiverton .....	2 0 0 .....	6,000 0 0
West Wheel Seton .....	5 0 0 .....	2,000 0 0
Dolcoath .....	4 0 0 .....	1,432 0 0
Prince of Wales .....	0 1 0 .....	640 0 0
Cashwell .....	0 1 6 .....	480 0 0
Wheal Kitty (St. Agnes) .....	0 2 0 .....	429 10 0
Brontyld .....	0 6 0 .....	300 0 0
English and Australian .....	0 0 6 .....	1,750 0 0
Total .....	£23,831 10 0	

At Cashwell Lead Mining Company meeting, held at Newcastle-on-Tyne, on Wednesday, a dividend of 1s. 6d. per share was declared. Particulars in another column.

At St. Ives Consols meeting, on Aug. 18, the accounts showed a loss on the three months of 104. They had a great many pitches working at high tributes, but there is no material change in the mine. There are 187 hands employed underground; of these 116 on tribute, at an average of 11s. 11.

At Nanglais meeting, on Aug. 18, the accounts showed a loss on the three months ending May of 112s. They are now driving a cross-cut to explore one of the most important pieces of mining ground in Cornish, the lodes which previous to it having proved in the adjoining mine the richest in the county.

At Wheal Owles meeting, on Aug. 21, the accounts for the three months ending June showed a debit balance of 8656s. 8s. 3d. As the debit balance at the end of March was 10,276s. 19s. 1d., this shows an improvement of more than 1600s. Capt. Richard Boys reported that 186 fms. 4 ft. 3 in. had been driven in, and 27 fms. 3 ft. 5 in. sunk in shafts and winzes—196 fms. 1 ft. 8 in. in all. They have 45 pairs of men stowing on tut for tin, and 18 pitches on tribute. They have about 200 tons of the unsold.

At Botallack Mine meeting, on August 19, the accounts for April, May, and June showed a profit on the workings of 6181. 16s. 9d., which reduced the former debit balance to 992. 16s. 4d. Capts. H. Boys, J. Rowe, and J. Boys—We have 27 pitches working for tin on tutwork. Quantity of tin raised in the quarter is about 10 tons in excess of quantity stamped and sold. Ground opened in the three months in shafts, winzes, and levels, 181 fms. 0 ft. 4 in.; ground stoned on tutwork, 788 fms. 4 ft. 2 in.; ground broken by tributors, 167 fms. 5 ft. 6 in.—1137 fms. 4 ft."

At New East Russell adjourned general meeting, on Thursday (Mr. J. Y. Watson, F.G.S., in the chair), a call of 6d. per share was made. Mr. Jehu Hitchins was appointed secretary, and the title of the company altered to Wheal Courtney. Messrs. Watson, Daukes, and Fisher were appointed the committee, and a meeting called for Sept. 17, to forfeit all shares in arrear of payment.

At the Royalton Tin Mine meeting, held at 12, Old Jewry Chambers, on August 21 (Mr. T. D. Price in the chair), Captain James Seccombe, of Liskeard, was appointed manager, and Mr. T. Thompson, of 12, Old Jewry Chambers, the future secretary, by whom, therefore, the general business of the company will be henceforth conducted. The reports presented to the meeting were highly satisfactory, and fully corroborated all that has been said with regard to this valuable property.

At the Princess of Wales Mining Company meeting, on August 20 (Mr. W. Ward in the chair), the accounts for the six months ending June showed a debit balance of 7647. 17s. 11d. A call of 2s. per share was made. Capt. Geo. Rickard reported that the engine-shaft is in regular course of sinking by a full pair of men, which is now down 5 fms. 1 ft. 6 in. in good killas ground. Every effort will be made to get the horse-whim erected by the time that it is required. Taking into consideration the characteristics of the lode in the air-shaft and adit level, together with several cross-courses which traverse the same, it is considered that they can scarcely fail to open out a valuable mine in depth.

At the English and Australian Copper Company's meeting, on Friday (Mr. R. A. Routh in the chair), an interim dividend of 6d. per share was declared. Details in another column.

The Australian Mining Company Shareholders' Committee (appointed at the general meeting on July 27) have conferred with the directors, and the resolution for the reconstruction of the company has been fully discussed, the result being that the board and committee conclude that the only effective mode of reducing the liability of the shareholders would be by winding up the present company by means of liquidation, and establishing a new company, as indicated by the report of the directors of July 20, and presented to the last general meeting.

Having regard, however, to the attendant risks in which it appeared upon investigation that the company might be involved by adopting such a course, they do not recommend the adoption thereof; but, on the contrary, there being already the distinct understanding that no further liability will be incurred, or call made by the board, except upon the special authorisation of the shareholders, they are of opinion that it is not advisable at present to make any alteration in the constitution of the company. For the satisfaction of shareholders, every director has signed a memorandum, which has been recorded in the directors' minute book, whereby they severally promise not to make, nor to concur in, any call upon the shareholders, nor to authorise or to approve of the contracting of any liability whereby a call upon the shareholders might become necessary, without first obtaining the sanction of the shareholders.

ers in general meeting assembled, after due notice. Since the last general meeting of the company a letter has been received from Mr. Davenport, the company's agent in South Australia, containing the satisfactory intelligence that he had agreed with 34 farmers—mostly Germans—to take blocks of land, varying in size from about 100 to 500 acres each, and containing in the whole, 11,063 acres of the company's special survey of 20,000 at Tungkillo (formerly held by Mr. Baker). The leases to be for 21 years, at prices varying from 2s. to 3s. 9d. per acre, and producing 15000 per annum for the seven years ending Michaelmas, 1875; which will be increased to 20000 per annum for the seven years ending Michaelmas, 1882; and to 25000 per annum for the remaining seven years— all mineral rights being reserved to the Australian Mining Company. In consequence of the decision of the board and committee, above referred to, the directors have decided to divide the surplus funds in hand by declaring a dividend of 6d. per share, which will be payable after Sept. 1.

At the Great Republic Gold and Silver Mining Company Committee of Bondholders' meeting, held at Mr. Williams' office, 25, Poultry, E.C., on Thursday (Mr. T. A. Mundy in the chair), it was resolved that a solicitor be appointed to carry out the necessary enquiries in conjunction with Mr. Williams, and that the bondholders be communicated with, to ascertain if they will join the bondholders who have at present registered.

At the Natal Land and Colonization Company general meeting, on Thursday (the Hon. F. C. Drummond in the chair), the directors' report showed that to December, 1867, the balance at the credit of the profit and loss account (after deduction of 847. 9s. 4d. written off preliminary expenses) was 10,837. 0s. 6d., more than equal to a dividend of 5s. 9d. per share, on 26,500 shares—10,492. 15s. 2d., as in 1866, so that date much of the interest earned by the colony remained unpaid, under these circumstances the directors did not deem it advisable to declare an interim dividend in January last; and, although the overdue interest is secured, and may shortly be realised, still, in order to be fully prepared to meet the payments of all the debenture bonds due in January next, the directors considered that the most prudent course for the shareholders to adopt is to postpone the declaration of a dividend until the receipt of further funds from Natal. The directors cannot but advert to the intelligence which has reached this country within the last few months relative to discoveries of gold in South Africa. In addition to the existence of this valuable mineral in the neighbourhood of the colony, there are extensive and valuable coal fields within its limits, which are now gaining the attention they deserve. The working of these, and of other minerals, including copper for export, may have a most beneficial effect on the property of this company. The statement of imports and exports in 1862 of 27,846t., and in 1867 of 225,611t. The directors' report was received and adopted, and a vote of thanks to the Chairman terminated the proceedings.

COAL MARKET.—This week 114 fresh ships came forward. The demand for all descriptions of coal has slightly increased, and we quote prices generally 3d. higher. Hetton Wallsend, 19s.; Haswell Wallsend, 18s. 6d.; South Hetton Wallsend, 18s. 6d.; East Hartlepool Wallsend, 18s. 3d.; Braddell's Wallsend, 17s.; Eden Main, 18s. Unsold eight cargoes; 40 ships at sea.

The COMPRESSED COAL COMPANY (Lydney) desire us to state that the Patent Fuel which exploded on board the steamer Briton, at Southampton, was not supplied by them;—“and we may further add, an explosion cannot occur from our compressed coal, as by the patent process used by us all pitch and tar are eliminated, and the coal selected (the Coleford High Delf of the Forest of Dean), though a

little more expensive, is quite free of explosive gases.”

IRON AND COAL IN THE UNITED STATES.—It appears that the quantity of coal imported into the United States in the four months ending April 30 this year was 50,333 tons, as compared with 43,576 tons in the corresponding period of 1867, the value being \$194,621 and \$157,761 respectively. The total quantity of railroad bars or rails imported into the United States in the first four months of the present year was 34,223 tons, as compared with 46,686 tons in the corresponding period of 1867, the value being \$950,515 and \$1,165,596 respectively. The imports of rails into the United States would thus seem to have declined this year, rather an unlooked-for result. The imports of pig-iron in the first four months of this year were 18,783 tons, of the value of \$315,854, as compared with 28,721 tons, of the value of \$655,361 in the corresponding period of 1867. The imports of bar-iron were 10,882 tons, of the value of \$580,281, as compared with 21,313 tons, of the value of \$1,089,530 in the corresponding period of the year 1867.

PREVENTION OF ACCIDENTS ON RAILWAYS.—The recent lamentable accident at Abergele, and the strong suspicion which exists that want of adequate signalling arrangements and of sufficient break power contributed largely to increase the sacrifice of life, has naturally caused peculiar interest to be taken in all that relates to those two important means of safety. Next to the admirable system, for which we are indebted to Mr. SAXBY, whereby it is rendered impossible to display a semaphore signal, indicating safety, unless the switches are in a position which justify that signal, there is, probably, nothing which tends more to secure the safety of the railway passenger than the train-signalling telegraphs, so extensively used upon all the principal lines, and which have successfully stood the test of 13 years practical experience. At the present moment Messrs. TYER and NORMAN's interesting little pamphlet is particularly acceptable, since it furnishes not only a brief history of train-signalling from the time Mr. COOKE introduced his first telegraph for train-signalling on the Great Eastern line to the present time, but also a detailed description of TYER's patent train-signalling apparatus, which is now in practical and every-day use on the principal British railways, as well as on the Continent, and in India. In these improved instruments the exterior indicator on the dial is moved by a soft iron armature, and thick wire is used for the coil, so that ordinary charges of lightning will pass freely through the instrument without injuring it instead of the coil being almost burned up, as it is when the usual very fine wire is used. Messrs. TYER and NORMAN's instruments present many advantages over those previously in use, and should be availed of by all companies whose train-telegraph system is not thoroughly efficient.

LAMP FOR USE UNDER WATER.—Mr. JOHN WARD, of Port Glasgow, has invented an arrangement for supplying light under water: it is an ordinary lantern, with two tubes for the descent and ascent respectively of air. Mr. Ward thinks that the heat from the flame will cause the necessary current of air.

Contract for Coals for Hong Kong.

CONTRACT DEPARTMENT, ADMIRALTY, SOMERSET HOUSE.

THE COMMISSIONERS FOR Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, do hereby give notice that on TUESDAY, the 1st September next, at Two o'clock, they will be READY to TREAT with such persons as may be WILLING to CONTRACT for SUPPLYING and DELIVERING into store, or on board Her Majesty's steam-ships and vessels at Hong Kong,

THREE THOUSAND FIVE HUNDRED TONS OF SMOKELESS SOUTH WALES COALS,

Fit for the service of Her Majesty's steam-ships and vessels.

The coals to be shipped—half by the 30th September, and the remainder by the 31st October, 1868.

A form of the tender and conditions of contract may be seen in the lobby of the Storekeeper-General's Department, Admiralty, Somerset House. No tender will be received after two o'clock on the day of treaty, nor will any be noticed unless the party attends, or an agent for him duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left hand corner the words “Tender for Coals for Hong Kong,” and must also be delivered at the Department of the Storekeeper-General, Admiralty, Somerset House, accompanied by a letter signed by two responsible persons, engaging to become bound with the person tendering in the sum of £2000 for the due performance of the contract.

By order, ANTONIO BRADY,

Registrar of Contracts and Public Securities.

Contract Department, Admiralty, Somerset House, Aug. 19, 1868.

PRUSSIAN MINING AND IRONWORKS COMPANY (PREUSSIISCHE BERGWERKS UND HUTTEN-ACTIEN-GESELLSCHAFT).

GENERAL MEETING.

The regular YEARELY GENERAL MEETING, in accordance with par. 26 of our Statutes, will be HELD on THURSDAY, the 17th September of this year, at Four o'clock in the afternoon, at the offices of our company, No. 34, Königs-allee, Düsseldorf, where the shareholders are requested to attend personally, or have themselves represented by proxy.

ORDER OF THE DAY.

Report of the direction upon the business operations of the past year, ended the 30th of June last, their results, and the general position of the affairs of the company.

Referring to par. 25 of our Statutes, the shareholders who wish to exercise their right of voting are requested to deposit their shares or receipts (Quittungsbogen), at least eight days before the general meeting, at our office, No. 34, Königs-allee, Düsseldorf; in London and Dublin, at the National Bank; or in Cork, at the Cork Steam-ship Company's Office; in exchange for certificates of deposit, and to leave them so deposited during the holding of the general meeting; as also, in the event of a representation by proxy, to have the proxy papers recorded at our office here, for examination by the direction, at latest twenty-four hours before the general meeting.

THE DIRECTION.

A LARGE AMOUNT of MONEY being EXPENDED in ADVERTISING in WORTHLESS PUBLICATIONS, C. H. MAY will be HAPPY to AFFORD INFORMATION to ADVERTISERS in the SELECTION of the BEST and MOST INFLUENTIAL.

C. H. MAY'S GENERAL ADVERTISING OFFICES.

ESTABLISHED 1846.

ADVERTISEMENTS inserted in all the London, Provincial, Foreign, and Colonial Newspapers.

78, GRACECHURCH STREET, CITY, E.C.

Notices to Correspondents.

COAL IN NATAL.—I have read several notices of the discovery of coal in Natal, but I have seen nothing which gives any indication of a systematic examination of the deposits, nor does any effort seem to have been made to demonstrate its commercial value. I should, therefore, be glad to know (and, perhaps, Dr. Mann, as the representative of the colony, could supply the information) what it would cost to send out a couple of good geologists to examine the districts wherein coal is reported, and upon what terms grants to work mines would be obtainable from the Government.—H. H.

THE AIR-TIGHT SAFETY-LAMP.—"D. F." (Newcastle).—The safety-lamp for burning under water, invented by Messrs. Liante and Denoyel, and referred to in the Journal of June 27, is still attracting some attention in Paris, and has been tested at Havre, but there appears to be some difficulty in obtaining reliable results. The lamp is described as far too large and clumsy for mining purposes, although it is beyond question an ingenious arrangement.

COLOURING METALS.—"H. R." (Birmingham).—There is some such invention as "H. R." describes for chemically colouring brass, silver, copper, German silver, iron, steel, &c., in various brilliant and permanent colours; but we are not acquainted with the details, nor do we know whether it is patented in England.

OILS AND GREASES.—"Old Subscriber" (Richmond, Yorkshire) should have stated the purpose for which the book is required, that some idea might be formed as to the work most likely to suit him. There are—Anti-sell on the Manufacture of Hydro-Carbon Oils from Coal, 10s.; Daddow and Bannau's Coal, Iron, and Oil (chiefly historical and statistical), 30s.; Derrick and Drill—the Present and Future of Petroleum, 6s. 6d.; Dr. Ernst's Coal, Oil, and Petroleum, 10s.; Bowen's Coal and Coke Oil, 10s.—all American works, obtainable through Messrs. Trübner, and Geesner's Coal, Oil, and Petroleum, 7s. 6d., published by Baillière, Regent-street.

Received,—"J. E. B." (Potosi, Missouri)—"B. S." (Truro)—"C. H. D." (Paris).

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, AUGUST 29, 1868.

A BOON TO COAL AND IRONMASTERS.

A greater boon than that comprised in the Boiler Inspection and Assurance Companies there has not been found in modern times. Frequent enough, unhappily, as such accidents now are, they are much less frequent than they were before such associations were formed. The principle they embrace was put into operation first for the protection chiefly of the boilers in the cotton mills; but the necessity for its extension to the collieries and ironworks forced itself upon the leading owners of such property in Staffordshire, and an association, now almost confined to those departments of industry was established principally by iron and coal masters. Under the care of its officers there are some 2500 boilers. Of these 1559 are in the southern and 949 in the northern mining and iron districts. These are the figures up to the end of June; since that time the number has increased. The directors met their shareholders on Wednesday last at Wolverhampton, and in their report said:—

"The state of the trade in both of the districts viewed by the company has, no doubt, in some measure retarded the rapid increase which might have been expected; but the directors are quite satisfied with the progress made under the circumstances, and feel confident that with the renewal of commercial activity, now beginning to be felt, still better results will be achieved."

Well may the directors be "satisfied with the progress made under the circumstances," for their profits not only enable them to declare a dividend of 10 per cent. per annum, but also to carry about 500z. to the reserve fund, which now amounts to 1500z., and is to be made certainly twice that sum. A higher ground for satisfaction—and it is that to which we desire especially to draw attention—is to be found in the fact that out of all the boilers in the company's care the only casualties in the half-year have been the collapse and rupture of the tube of a Cornish boiler, which was allowed to run short of water; and an injury to the seams of a boiler when not under steam, involving together a total loss of about 75z., which the company paid out of current receipts. A more satisfactory state of things it is difficult to imagine. Much destruction of property and the sacrifice of men's lives have been prevented, with all the attendant loss and misery. How much the proportion of such disasters may be yet further reduced by a prudent forethought on the part of owners of boilers may be gathered from the circumstance that the number of boilers which have exploded in the United Kingdom in the half-year closing with June numbered, as reported, 24. These have caused the death of 21 people, and have injured 33 others. But not one of the 24 was in the care of this association, but the officers of it have taken pains to ascertain the causes to which most of them may be attributed. Corrosion has been the direct cause of five of them. Three of the boilers were so old, or so frequently repaired, as to be worn out. One was so thin as to be unfit for the purpose for which it was used, and in another the angle-iron was faulty. Two had no proper stays. In five the tubes were too large to bear the working pressure without danger. In one both iron and workmanship were bad, and in another the man-hole was insecure. And two were allowed to run short of water.

It is very easy to imagine that if these boilers had all been under inspection very few of the accidents would have happened. Doubtless, examinations and inspections are made by servants of owners, and they are the more thorough in proportion to the class of the firm; but when these are followed by the inspection of men whose avocation has especially trained them to detect evidences of danger which would escape many other men, the proprietor of a boiler may entertain tolerable satisfaction as to the security of this portion of his machinery. The actual work done by the association is very considerable. During the half-year there have been 5897 examinations, of which 793 have been internal, and 624 in the flues; and as many as 834 reports have been sent to the owners. Passing indications of lurking mischief have in several instances led to the officers requesting that they might be allowed facilities for making internal and flue examinations. The issue has been the detection of serious seam rips and other dangerous defects, which must have resulted in explosion if they had not been detected. Corrosion is still found to be one of the most frequent evils, and should be guarded against by keeping all joints properly tight. Very many examples could be given where good boilers have been ruined by leakage soaking into the brickwork in contact with the plates.

The men to whom we entrust the care of our boilers still need much instruction, and through these associations they are being educated in many important particulars. Mr. E. B. MARTEN, the chief engineer, says—

"It gives me pleasure to notice that those in the actual charge of boilers have appreciated the information supplied to them on the subject of boiler explosions, and also on the management of boilers and the prevention of smoke. Until latterly the fireman, to whom such valuable property is entrusted, has had nothing to guide him but his own experience."

They have still much to learn; and so, too, have the people who are usually called in to repair boilers.

"Several boilers (writes Mr. MARTEN) of the internally-fired class have given great anxiety from continued leakage over the fire-places and near the bridges, and the plates there have been found seam-ripped, or cracked through the riveting holes, and also they have shown signs of being drawn out of shape by overheating, and yet no improper working could be detected when they were examined under steam. It has, however, been discovered in these cases that, in spite of all remonstrance, the boilers have been emptied immediately on the stoppage of the engine, instead of waiting for 12 hours until the flues had cooled, so that the plates and seams had been unduly heated and injured. This evil habit leads to the need of such frequent repair that rivets are removed from the holes two or three times, and as few plates will stand such punishment, the edges crack when the drift is used to make the old and new work meet, and a seam-rip is formed, which is only covered by the rivet, while the strength of the boiler is not restored."

To this state of things is altogether due an explosion which has done damage to the extent of 500z., and has killed a boy. It occurred about a month ago at Earl GRANVILLE'S Bell's Mill Pit, North Staffordshire. The officers of this association reported frequent leakings

over the fire at the seam which ultimately ruptured, and repairs were made, the last time only a week before the accident. The agent of this society reported the repairs insufficient, and the fire was actually being drawn out to make the repairs complete when, as the last clinker was being taken off the bars, the boiler rended. It had been repaired six or seven times in two years, and most times badly done. If this be going on in such service as the Earl GRANVILLE'S, what may not be expected elsewhere?

The enquiries we have instituted into the cause of seven deaths which have resulted from the bursting of a furnace boiler at the Mersey Iron and Steel Works, Liverpool, convince us that official inspection would have prevented the explosion. The bottom plate, by continual corrosion, was thinned down almost uniformly till in some places it was only 1-16th in. thick. An almost precisely similar state of things led to the explosion of the same class of boiler about a month ago at the Broughton Hall Ironworks, Wrexham, when one person was killed. The practised eye of an inspector would have detected traces of what was going on, although the thinned plates were hid by brickwork.

Most heartily we welcome every effort made to enable us to work our boilers at the minimum of risk. The discussion at Norwich, before the British Association, on Mr. L. E. FLETCHER'S excellent paper, "On the Unsatisfactory Character of Coroners' Inquests on Steam-Boiler Explosions," will do good service; but much more practical benefit will result from careful experiments on a large scale, such as those recently conducted at Wigan. Science is bringing us daybreak in this matter. Truly—

"A wind came up out of the sea,  
And said, 'Oh! mists, make room for me. . . .'"

This desirable object (in the prose of Mr. MARTEN) will be facilitated by those who have not already done so placing their boilers under such a system of inspection as this company provides.

THE REPRESENTATION OF THE MINERAL INTERESTS.

The Representation of the Mineral Interests in the New Parliament is one of such vital importance, and so intimately connected with the present prosperity and future development of those vast commercial enterprises upon which the nation's greatness depends, that we feel but little, if any, apology need be made to our readers for again referring to the subject—our only object being, as we before remarked, to show the claims which gentlemen connected with our staple productions have to seats in the Imperial Legislation of the country.

Our mining, our colliery, our railway, and our commercial interests have for a long time been depressed to an unprecedented extent; in every department trade has been stagnant, if not altogether paralysed; furnaces have been blown out, mills have suspended operations, and puddlers, furnacemen, and ironworkers discharged from their employ. Prices of all descriptions of iron have been extremely low and unremunerative—so much so, indeed, that proprietors and managers have had to tax their ingenuity to the utmost possible extent to keep their works on "the move," and their establishments from going to utter ruin. Our railways, too, have seen times of depression and prostration almost, if not altogether, unparalleled in the nation's history. Our copper trade has followed in the same course, prices having been lower for a longer consecutive period than for very many years past. The depression in the mining trade has naturally affected the colliery interests, and colliery operations have not, consequently, been carried on with that general activity which characterised them in former years. In a word, the whole mining and colliery world has had to pass through a season of great difficulty, and to experience most trying ordeals. During this depression we have heard a great deal about the diversion of our iron trade into other channels, and it has been said by some that our Belgian neighbours are rapidly rivalling us in the make of iron and other of our staple articles of production. For our own part, we think far too much has been made of this outcry, but, at the same time, it is not a matter which should altogether be overlooked. We still place implicit reliance in the strength of England's arm—in her vast mineral resources—in the indomitable perseverance of her large employers of labour, and the industry and skill of her artizans and working population. But our working classes should be made to feel the identity of their interests in those of the proprietors of ironworks, copper-works, collieries, and other staple productions; this feeling once established, all would strive to their utmost to advance the prosperity of those trades, and thus maintain our country's greatness. Hence, then, the necessity of our great commercial and mineral pursuits being represented by gentlemen of sound practical knowledge, acquainted with the requirements of the trades, and ready to promote their interests.

In the two preceding articles we endeavoured to point out that Mr. H. HUSSEY VIVIAN, the present Member for the county of Glamorgan, and the Right Hon. H. A. BRUCE, the present Member for Merthyr, are two gentlemen eminently qualified to represent those interests in which they are so deeply personally interested. Their seats vacant would create a void in the mining representation of the country, which it would be almost, if not altogether, impossible to fill up. Both gentlemen have had many years' experience of parliamentary life, and their labours on behalf of the mining interests generally are well known and appreciated. We have also said that Mr. RICHARD FOTHERGILL, of the Plymouth, Abernant, and other large ironworks in the Merthyr district, and one of the largest employers of labour in the whole kingdom, would, in our opinion, make a valuable co-advisor of Mr. BRUCE, and we hope, therefore, to see him returned as the second Member for Merthyr. There are other gentlemen, however, connected with mining and colliery operations, of sound practical knowledge, scientific ability, and comprehensive minds, well known, too, in the mining world, whose return to Parliament we, as the representative of these great interests, would hail most heartily, regarding their accession to the ranks of "Mining Representatives" as most necessary and valuable at the present juncture. And, surely, one such gentleman would be Mr. PENDARVIS VIVIAN (brother to Mr. HENRY HUSSEY VIVIAN, M.P. for Glamorganshire), who has announced himself as a candidate for West Cornwall, and, let us say, with every prospect of success. What a thick cloud has hung over the mineral interests of Cornwall for a long time past—how rapidly and how signally has its mineral property depreciated, and what a general exodus has there been of those who had to depend upon the prosperity of the mines for their support. In some districts the most perfect and complete ruin has ensued, and mines now lie altogether unworked. We, however (although we readily admit that present appearances are sadly against us), have firm faith in Cornwall's future prosperity—we believe that better times are yet in store; her mines are not yet exhausted—mineral wealth still remains, requiring, it is true, energy, perseverance, and capital to work; but we believe those appliances are at hand, and, once secured, Cornwall will again see more prosperous times. Mr. PENDARVIS VIVIAN is eminently a "mining man," and, if elected to the seat he now seeks, it would, no doubt, be drawing into more intimate and closer connection those commercial ties which have so long existed between his firm and the copper ore mines of Cornwall. It is well known that the Messrs. VIVIAN are of Cornish descent, the family having been intimately connected with the county for centuries past. The late Lord VIVIAN (uncle to Mr. PENDARVIS VIVIAN) represented Cornwall for many years, and the whole county had just reason to be proud of such representation. Mr. VIVIAN's father and grandfather were each in their day the greatest miners in Cornwall, being largely interested in many of the principal mines, the grandfather having filled the important office of Vice-Warden of the Stannaries. Mr. PENDARVIS VIVIAN (as the other brothers of the firm) was educated at the Mining College of Freiberg, Saxony, where, of course, he acquired such knowledge as eminently fitted him to discharge those duties which devolved upon him consequent upon his business connections. Since entering upon the active duties of life, Mr. PENDARVIS VIVIAN, as one of the partners of the firm of VIVIAN and SONS, has taken a prominent part in the management of the large copper-works and rolling-mills of Margam, Taibach, and also of the extensive collieries of Morfa, one of the largest in South Wales, where about 180,000 tons of coal are raised per annum. The firm of VIVIAN and SONS have, as is well known, occupied a prominent position in the copper trade for many years past, smelting nearly a fifth of the whole production of copper in the kingdom. As showing the connection, in a commercial point of view, which has existed for so long past, and which still exists, between the Messrs. VIVIAN and Cornwall, we may state that

the Messrs. VIVIAN have always been large purchasers of Cornish ores, and so far back as the year 1818 the then firm smelted no less than 18,89 per cent. of the whole copper ore produced in Cornwall, and in the year 1822 about 20,82 per cent., and since that time the Messrs. VIVIAN have always been very large purchasers of Cornish ores. In the very able and lucid address which Mr. PENDARVIS VIVIAN has just issued to the electors he says—"Although not resident among you, I am proud of my Cornish descent, and from my earliest days have been taught to entertain feelings of deep regard towards Cornwall. Commercially, my interests are intimately bound up with your own, and I venture to hope that I shall be able efficiently to represent their technical and commercial bearings." We think Mr. VIVIAN is quite justified in holding out these hopes to our Cornish friends, when it is remembered that by the scientific treatment of portions of Cornish ores his firm have extracted not only the copper contained, but have successfully treated the argentiferous copper ores, and paid for the silver value as well as the copper value. This branch of the trade was originated by the firm of VIVIAN and SONS, and we believe we are correct in stating that many thousands of pounds have been thus paid to Cornish miners, which but for the Messrs. VIVIAN would have been entirely overlooked. Mr. VIVIAN has recently addressed crowded meetings of the electors in several of the principal towns, where he not only explained his political views, but his identity of interests with those of Cornwall. Everywhere he was received with the greatest enthusiasm—in fact, there was such an unanimous feeling of expression in his favour that a Mr. BASSETT at once withdrew the opposition which he threatened. There is, therefore, every prospect that Mr. VIVIAN will be returned, and thus the ranks of our mineral and colliery interests strengthened in a most material degree, for, although he has not had any parliamentary experience, he is, as we have endeavoured to show, most intimately and practically acquainted with our great staple productions, and, consequently, will be very ready to uphold all those measures which shall tend to promote the great interests of the mining world. We, therefore, heartily wish Mr. PENDARVIS VIVIAN every success, and hope that the electors will see to it that his election is made sure beyond the shadow of a doubt, for it will be the means of renewing the parliamentary representation of the Cornwall mineral interests by the VIVIAN family, and thus advancing the mining interests of the whole county.

It was at one time hoped and believed that Cornwall would have had the great advantage of another gentleman intimately connected with the mining world as a representative of its vast mineral productions, Mr. H. R. GREENFELL having issued an address to the electors of St. Ives. Mr. GREENFELL is a member of the well-known firm of PASCOE, GREENFELL, and SONS, the oldest house in the copper trade in the country, and he is also a director of the Bank of England. He is an eminently practical man—intimately acquainted with the mining and commercial interests of the country, and as he very aptly stated in his address to his constituents—"I have no interest apart from commercial interest." Mr. GREENFELL has served his apprenticeship to parliamentary life, having now sat in the House for six or seven years, and during that time has supported in the most strenuous manner every measure tending to the prosperity of the mining interests and the expansion of trade and commerce. Regarded in this light, the electors of St. Ives and its tributary boroughs would have had an able representative of its interests had they secured the services of Mr. GREENFELL. Mr. GREENFELL has, however, transferred his candidature to Lancashire, being probably anxious to renew the parliamentary representation of the family with that district, his father, Mr. CHAS. GREENFELL, having previously represented Preston. From present appearances there is every probability of Mr. GREENFELL's return, and thus the mining and commercial world will not lose the services, in a parliamentary sense, of so able and valuable a man. Whilst referring to the representation of Cornwall, it is with much pleasure we find that Mr. NICHOLAS KENDALL seeks re-election for the Eastern Division of the county, a position he has held for the last 16 years, and the duties of which he has discharged with signal ability. The measure introduced into the House some few years ago relative to the Rating of Mines was to a great extent initiated by Mr. KENDALL, and he was placed upon the Select Committee of the House of Commons in relation thereto. Diversity of opinion, no doubt, exists in reference to this matter, but nobody, we think, can question the honesty of the intentions and the sincerity of the motives which prompted Mr. KENDALL in the steps he took in this measure. In seeking re-election, Mr. KENDALL has, no doubt, a political contest before him of no ordinary nature, but we sincerely hope that the electors will not allow the slight shade of political difference which exists between those of Mr. KENDALL and his opponents to outweigh those great claims which he has as an able supporter of their commercial and mining interests. The mining world at the present moment cannot afford to lose the services of a single gentleman who has the practical qualifications to represent their interests. There are not wanting men who, for the sake of a little brief notoriety, would endeavour to carry out measures vastly inimical to the interest of colliery proprietors and operations, and the practical effect of which would be to cripple commercial enterprise in more respects than one. Modern legislation has paid but little attention to the interests of large employers of labour. The elevation of the working classes in the social scale has been made the popular cry; and although all classes rejoice in the vast strides which have been made in the education, the social condition, and the general improvement of the working classes, still the claims of the large employers and of capital should not be altogether disregarded and overlooked. Make our collieries and our mining operations generally as safe as practical measures can carry good ventilation, but unnecessary restrictions should not be placed upon the winning of coal. Abolish the "truck system" in connection with our large ironworks if you will, but let the rights of the employer be as zealously guarded and as readily recognised. It is because we have carefully watched the tendency of modern legislation that we now advocate the return to the new Parliament of men who are able to protect the mining and commercial interests of the nation. We have no fear of foreign competition so long as England has fair play—a fair field and no favour is all we require and for all we ask. But this fair field should be for the employer as well as the artizan, and there should be no favour shown to one class at the expense of the other. The working men of England will be more largely represented in England's Senate, or, rather, they will have a louder and stronger voice in the selection of senators, than on any previous occasion. We trust—we hope and believe—they will wisely exercise their rights, and that they will see it is to their interests to uphold those great mining and commercial pursuits which have achieved for England her present greatness, and upon which her future prosperity so vitally depends.

MR. ALEXANDER BROGDEN FOR WEDNESBURY.

The committee of representative voters in the new borough of Wednesbury have selected Mr. ALEXANDER BROGDEN as the candidate to whom the Liberal party are to give their support. In consequence, Mr. ROBINSON, in accordance with the understanding to which he came with the committee, has at once withdrawn his candidature. Mr. ROBERT MALCOLM KERR, Judge of the London Court, has not, however, done so yet, nor is it understood what Dr. KENEALY will do. Mr. WALKER, who is of the opposite side in politics, will, it is believed, go to the poll, and other candidates may yet appear. We trust, however, now that the preliminary choice has fallen upon Mr. BROGDEN, and Mr. ROBINSON is no longer before them, the constituency who are interested in the trade representation of their borough will rally round Mr. BROGDEN, and use every effort to secure his return.

Mr. BROGDEN is a man of enlarged experience, is not a novice in political matters, and knows well what is necessary for the welfare of South Staffordshire, in which, as a proprietor of minerals in Ulverstone, he is largely interested; for from that district South Staffordshire is drawing much of its best blast-furnace ore, with also finer qualities of the same mineral, for use in the forge furnaces, as "fettling."

His opponents will make the most of an objection which has been industriously promulgated, with a view to his disfavour. He is charged with being a tommy-shop master. But this imputation—so far as it reflects unfavourably upon him—has been disproved upon

the clearest and most disinterested testimony. The allegation is made in relation to the Tondu Works, in South Wales, of which Mr. BROGDEN is a partner. In its disproof Mr. BROGDEN has published communications, written from the spot, by men whose letters show that there are hearty enemies of "truck" in every shape, but who, nevertheless, warmly approve what Mr. BROGDEN's firm are doing. Amongst these witnesses are the Ven. Archdeacon of LLANDAFF, the Roman Catholic priest of Bridgend, and several other dissenting ministers. Their testimony shows that the shop system at Tondu is regarded as a great convenience and benefit. Not the slightest restraint is imposed in any case, and every workman is left perfectly free to buy there or elsewhere. Many adopt the latter course. In testimony of the personal worth of Mr. BROGDEN and his brother, one writer says—"The BROGDENS are too honourable and kind to keep a truck-shop, which is illegal according to the English law, and an injustice to the employed." These testimonies are not called for by those who know Mr. BROGDEN, and that gentleman's own explanation should, without them, be sufficient explanation and satisfaction to the constituency. He says:—

"We have no shops in Lancashire in connection with our works there, nor at Durham in connection with our collieries there, the towns in those localities containing shops quite equal to supplying all the wants of the people. Our works in Wales consist of ironworks at Tondu, collieries at Maesteg, and in the Ogmore Valley. Tondu and the Ogmore collieries contain a population almost entirely engaged at our works; the nearest town is Bridgend, three miles from Tondu, and ten miles from the Ogmore collieries. In the latter place there are no shops whatever, except one which we opened and carried on until this year, at a loss to ourselves; but we convey men and wives over our railway to Tondu Junction every day free of expense, so as to enable them to make their purchases at Bridgend if they choose. Our men from Tondu frequent the shop at Bridgend very much, and on market days the trains are made to suit their convenience for doing so. There are only one or two small village shops at Tondu. At Maesteg, where we have large large collieries, we have no shops whatever. Our men at all the works are paid on account every fortnight. In cash, and the balance in cash at the end of the month. Not one-fourth of the wages is spent in our shops, owing, I suppose, to the feeling against masters' shops; but the farmers all around, finding that they can buy cheaper from us, are constant customers, and the shopkeepers at Bridgend and Maesteg complain that we keep down their prices. Our men make no complaint whatever of the system we adopt. They are, in fact, not to my shop in the ordinary sense, but a convenience to the men, which they may use or not, as they choose, and only respond at their urgent request after being closed for more than 12 months. \* \* \* I am too thoroughly convinced of the importance, to both masters and men, of their having cheap food, to be a party to any compulsion as to where they make their purchases: but in the way in which we carry on our business, and in localities far removed from any town, the cost of living would be greatly enhanced if no provision were made by us for their supply."

#### EASTWOOD COLLIERIES, IN THE EREWASH VALLEY, NOTTINGHAMSHIRE.

##### THE HIGH PARK AND MOOR GREEN PITS.

The Eastwood Collieries, belonging to Messrs. BARBER, WALKER, and Co., comprise eight different establishments, at which are raised altogether about 600,000 tons of coal per annum. We were kindly permitted by Mr. ROBERT HARRISON, the principal manager, to inspect the collieries, accompanied by Mr. WESTON, the colliery manager. The establishments are as under:—

1.—High Park Pits: two downcasts, each 10 feet diameter, 195 yards deep to the Top Hard Seam, about 40 yards apart; and one upcast, 13 feet diameter, 120 yards deep, being 1250 yards distant to the rise or west of the downcasts.

2.—The Moor Green Pits are situated about 20 yards from the High Park upcast; they are in process of opening out in the Deep Soft and Deep Hard Seams, and the whole, when completed, is likely to form one of the finest and most extensive plants in the kingdom. The following are on a less extensive scale:—

3.—The Willey Colliery: Top Hard Seam worked, 180 yards deep.

4.—The Underwood Colliery: Top Hard Seam worked, 160 yards deep.

5.—The Watnall Colliery: Top Hard Seam worked, 130 yards deep.

6.—The Hill Top Colliery: Top Hard Seam worked, 95 yards deep. [Deep.

7.—The Eastwood Colliery: Deep Soft and Deep Hard Seams worked, 170 yards.

8.—The Cotmanhay Colliery: Deep Soft and Deep Hard Seams worked, 100 yards, two 8-foot pits; a 21-horse engine and boiler underground hauls coal from the dip.

A large fault running north and south, and another large fault running east and west, form the boundary for the first six collieries, to the west and north; the royalties comprise about 5500 acres, and are the properties of Lady PALMERSTON, Duke of NEWCASTLE, Duke of RUTLAND, Earl MEXBOROUGH, and Col. ROLLESTON. The Eastwood and Cotmanhay Collieries are situated on the west side of the large fault before named, on an area of about 500 acres, belonging to the Duke of RUTLAND, Mr. A. M. MUNDY, and Mr. C. J. PLUMPTRE, so that the whole royalties amount to 6000 acres, or thereabouts. Besides the above, there are two pits situated at Beggar-lee, 100 yards deep, exclusively used for pumping water. These are placed about the centre of the 5500 acres; water levels in the Top Hard seam are driven from them, extending to the north about 2½ miles and to the south about 2½ miles, near to the boundary at their extremity in each case. There are two atmospheric, or open-topped, cylinder-engines here, each 70-horse power; one raises water in two lifts of 14-in. bore, the other in two lifts of 13-in. bore, at present and in the dry season only one engine is required at work. There are also two other engines exclusively for pumping at Brinsley Pits, northward from Beggar-lee, on the same north water levels; one engine is double-acting and condensing of 160-horse power, the other a single atmospheric engine of 70-horse power. These four engines drain the whole of the collieries between the water levels and the large fault to the west, with the exception of Hill Top, which has an independent pumping-engine. By means of cast-iron tubing the High Park and Moor Green pits, to the dip of the great water levels, are rendered nearly dry, and no pumping is required in them. The water is drawn at High Park by tubs about once in two months.

**HIGH PARK COLLERY.**—Two drawing pits; one winding-engine, 36-in. vertical cylinder, 5 ft. stroke; working pressure 40 lbs.; drums for flat wire-ropes 14 ft. diameter. The drums rest on a central wall and the side wall of the house. There are six boilers, five in use. This engine was made and erected by the Butterley Iron Company. The engine works a cage in each pit, each cage carrying two tubs on one level. There is no timber in the pits, except the guide-rods and the blocks of wood fixed in the walling to which the guide-rods are bolted. There are 55 yards of tubing in each pit; the remainder of the pits is secured with 9-in. brickwork. The engine can draw 100 tons of coal per hour; in 9½ hours—that is, from 6.30 A.M. to 5 P.M., and one hour less for dinner—it will draw 950 tons.

These pits have been in operation seven years; the levels from the bottom of the pits extend 1000 yards to the north and 1200 yards to the south. There are double lines of road throughout: the levels are both in the same line, and perfectly straight, so that the north side rises 40 feet, and the south side only 6 feet to the extremity. There are 13 gate-roads on the north side of the pits, to the rise, 90 yards apart, the first five having the work concentrated into the third gate-road by driving a cross-gate at the high end of them, which relieves the expense of keeping four gate-roads open below the cross-gate. The coal is brought down the third gate-road by self-acting incline, and there are six other gate-road inclines made on the north side. The average rise of the seam is 1 in 20, but this is subject to variation for short distances. Barrel jigs and ½-inch steel wire-ropes are used in the inclines; the ropes last four years or more.

Section of the Top Hard seam and the Coomb coal, near the face of the north levels:—

Comb coal, left for roof ..... 2 ft. 3 in.

Clunch ..... 4 ft. 0 in.

Top Hard Seam—1. Roof coal, soft ..... 1 ft. 1 in.

" " 2. Riller, inferior ..... 1 1

" " 3. Best hard steam coal ..... 1 4

" " 4. Bottom, soft house coal. 1 4 = 4 10

Fire-clay, holing or clunch ..... 1 0 = 9 ft. 10 in.

The average thickness of the Top Hard seam is stated to be 4 feet 6 inches, and the clunch above varies from 3 feet to 16 feet in thickness; it is of a loose nature, forms a bad roof, and is always ripped down in the levels and gate-roads up to the Coomb coal, which forms an excellent roof. In the stalls the clunch is kept up by props and timber, the debris from the levels and gate-roads being taken into the stalls for making pillars and filling up vacancies. Each gate-road runs up the middle of a stall, or rather there is 50 yards of face on one side and 40 yards on the other—90 yards of face in all, the coal from which is brought to one gate-road. Each stall is let to three men, called stallmen, who employ all the other men engaged in working and bringing the coal to the top of the incline, under a contract price, in the several divisions of labour—three holes, four

fillers, two timbering and pillaring, six boys as wagoners—12 men and six boys. These will send out 50 tons of coal per day from one stall. The three holes, two timberers, and two of the stallmen commence work at 3 A.M. and leave early; the fillers, boys, and one stallman commence at 6.30 A.M., ending at 5 P.M. The contract with stallmen applies to labour only, no materials are included. A line of rails is laid down on each side of the gate-road end, which is extended along the face as the fillers dispose of the coal which is got down ready for them, until they reach the extremities, where they will meet the adjoining stalls on either side, when the rails are removed and the road laid down as before for another fall. The timberers bring up continuous pillars after the face of work with stone obtained from the gate-roads, the space between is filled up tight with material from the holing, small coal, and other debris. Besides the props, stretchers are placed to support the roof between the face and the props at regular distances, whether required or not, as the clunch overhead contains sigillaria in great quantities, which drop out often without giving any warning, and have caused numerous accidents. In addition to those men engaged in getting coal by contract, there are nine others employed at nights after the pit has stopped, in ripping down the clunch in the gate-roads. The levels and gate-roads are made 12 feet wide, the height varies with the thickness of the clunch, if that is 4 ft., which is the ordinary thickness, the road will be about 9½ feet high, and in some places it will reach 21 feet, the debris being all stowed in the goaf. There is only a small production of fire-damp in this seam, but ventilation is maintained to meet a large quantity, should it ever occur. Fire-damp in variable quantity is given off from the Coomb coal, when the top is being ripped down. The men engaged at this work are constantly provided with Clancy lamps to examine their places before and after firing shots. There are other five men at nights employed in clearing and repairing the roads throughout the pit, being also employed by the company. There are three deputies or overmen employed, in three turns, in the 24 hours, each of whom inspects and travels the whole pit in eight hours, and who report the state of the pit, and any occurrences, to the resident agent. There can, we think, be no question that this is an excellent specimen of long wall working—apart from the contracting system—and well worthy of imitation in the fiery collieries of the Barnsley district, where the roofs will be as good, or better, than that we have attempted to describe. The system is advantageous, in the large quantity of coal got from a limited space and brought to one road from 90 yards of face; in filling up the goaf, whereby no space is left for accumulation of fire-damp, the roof thus gradually settles down without breaking, the stones being brought sometimes from a considerable distance for stowing, in order to carry out measures of safety. This system may not apply to every situation, as the conditions of coal, roof, and floor are so variable. The same seam worked at adjoining collieries—Annesley and Hucknall—approaches close to the Coomb coal, whereby a much safer roof is obtained in the stall working; the height in gate-roads is probably obtained by cutting the bottom, which may serve as well the purpose of filling up the goaf. No doubt the slight inclination of the seam, and the moderate produce of fire-damp at High Park, are favourable points in the system, but as it avoids the elaborate use of doors and extensive air-courses we think both safety and economy would be attained in other localities by its adoption, as the effect of completely filling the goaf and preventing great falls of supercumbent strata would be to confine the range of fire-damp to the air-courses along the face of the work, where it can be swept off by good ventilation.

The south levels are driven 1200 yards from High Park pits, and 14 gate-roads are driven out of them, 90 yards apart; seven inclines are made, the coal from the first five gate-roads being brought down the third, as described on the north side. The face of work is thus about 2200 yards long, but the whole of this is not at present worked. This is ventilated by eight divisions of air; 60,000 cubic feet per minute is stated to be passing down the pits, and 4000 of this will, probably, be sealed off to the stables, leaving 56,000 cubic feet, or 7000 cubic feet per minute for each division. There are two furnaces at the bottom of the upcast pit—one 9 ft. long, 6 ft. wide—54 ft. area; and one 6 ft. long, 4 ft. wide—24 ft. area. The pit is 120 yards deep, and 13 ft. diameter; 100 tons of coals are consumed per week by the furnaces, equal to 11½ lbs. per minute, and 1 lb. of coal to 2701 cubic feet of air in circulation. The large proportion of coal used is attributed to the shallow upcast, the returns are understood to be of proper size, the furnaces should not be more than 5 ft. long, and of any width, to be worked effectually. A fan is proposed to be substituted here for the furnaces; no particular make of fan has been fixed on, but one which is popular in South Wales is likely to have the preference. Instead of erecting one large fan it would, perhaps, be conducive to safety to adopt three smaller ones, each fan to be worked by an independent engine; while one was stopped for repairs, the other two would be kept in action, at an increased speed if desired. The same observation would apply to Mr. NIXON's ventilator, two or three of them being preferable to dependence on one only, and where the cleaning and repairs of numerous valves is involved in the question. There are 33 horses employed in the High Park Pits, and 16 ponies and asses, the latter being employed in the stalls. It is intended to substitute engine power for all these horses; the power proposed is by compressed air-engines, to work endless ropes, one for each side of the pits, for which the levels are admirably adapted, being straight, and the undulations have been made uniform to some extent. On the north side the main level has a 40-yard pillar on the rise side, and a 10-yard pillar on the dip. On the south side of pits no pillars are left, the coal is taken wholly out, the roads are found to stand better on this plan; on the north side the contrary was the result, after trying both ways.

The longest gate-road is 792 yards; they decrease in length towards the extremities. Each tub of coal is weighed by machines placed near the bottom of the pits, one at each side. After the coal is drawn up the pits it is taken to the truck siding; the best is taken for steam coal, the remainder is taken in the tubs to the two screens, and separated into three descriptions of coals—large, cobbles, and small—for house and other purposes. No fault has been found in the High Park Colliery; in the great water levels, five miles between their extremities, no fault is found until the 20 yards downthrow to the north is met, which forms the boundary in that direction. About 100 yards of solid coal is left on the site of the pits for their support; there are 70 yards of arching at the bottom on each side, 10 ft. wide, and 10 ft. high from rails, after that the road is sustained by timber, principally stretchers for the clunch. The other six collieries at work are worked on nearly the same principle of long work, with the same care observed in measures of safety.

**MOOR GREEN PITS.**—One downcast and one upcast pit, each 13 ft. diameter, 48 yards apart, have lately been sunk to the Deep Hard seam, 290 yards depth, the Deep Soft being 14 yards above. The levels are driven out in the Deep Hard about 100 yards on each side of the west or upcast pit, nearly in a north and south direction. From the pit there is one branch road for the laden wagons, and another branch for the empty wagons, which unite 55 yards away. The arching between and around the pits is 20 feet wide, and 20 feet high from the rail; beyond this the arching is made 12 feet wide, and 12 feet high. The Deep Hard coal will be drawn at the west pit, and the Deep Soft at the east pit. Two cages in each pit, drawn by one engine: each cage will hold four wagons, on two decks, for which two levels will be provided, both at bottom and top of the pits. The upper deck will be supplied with wagons on a road from the north side, raised 5 feet; and the lower deck will be supplied at the present level, from the south side of the pit. The same arrangement will be adopted in both pits, allowing the wagons to be changed to either pit, and saving the hoisting of the cages. The Deep Soft coal will be worked altogether to the dip of the pits by engine-power, and the Deep Hard will be worked only to the rise, so that the proximity of the two seams may not interfere with the safe and economic working of each, the working of one being delayed until several years after the other has been worked in the same area.

Section of Deep Hard Seam at bottom of West Pit:—

TOP BASS OR OIL SHALE.

Soft coal.....	0 ft. 10 in.
Main hard.....	2 4 = 3 ft. 2 in.
List, or bass.....	0 ft. 3 in.
Clunch.....	0 9 = 1 ft. 0 in. holing.

The Deep Soft Seam is also about 3 ft. 2 in. thick.

A block of coal 300 yards square will be left at the site of the pits in

both seams, to ensure their stability. The pits have been sunk by two old atmospheric engines of 12 and 10-horse power each, which are still drawing, with two flat hemp ropes each.

The two large winding-engines are in course of erection in one house, between the pits; each has two vertical cylinders, 30 inches diameter, 5 feet stroke, 45 lbs. working pressure, direct-acting to the drum shaft on each side of it; drums 16 feet diameter, for flat ropes, placed on two strong central walls, these walls being extended to the other end of the house for the second engine. Two donkey engines erected in the house for feeding boilers, each 8½ inches cylinder, 8 inches stroke, 6 inches ram. There are twelve boilers in course of erection, 36 feet by 5 feet each, and flues communicating with two tall chimneys. The engines will be capable of drawing each 1000 tons per day, and are made by Messrs. Thornewill and Warham, Burton-on-Trent.

**TUBING.**—At the top of the pits there is 20 ft. of walling, watertight; below that 90 yards of cast-iron tubing, each course 3 feet deep; 3 in. thickness of metal; below the tubing the pits are walled throughout by 9-in. brickwork. The tubing in the downcast is built in the ordinary way, with the flanges outside; that in the upcast has the flanges inwards, and the space between the flanges is filled in with 4 in. fire-bricks; this leaves the flanges only exposed to the action of the heat and acids in the shaft, and allows the joints to be seen and repaired. It is proposed to place a 9-in. brick partition in the upcast, and a 3-in. plank partition in the downcast, to receive and support the guide-rods; it will also allow of coal being drawn on one side while men are going down the other. Three guide-rods for each cage—two fixed to partition, and one pit side opposite. The water will be drawn by tub, very little at present. The Cotmanhay two 8-foot pits have 50 yards of tubing in each, put in 30 years ago, in 12 years had to be replaced in the upcast; the principle of inside flanges, understood to have first been introduced here, at this time, by the manager, Mr. R. HARRISON. Tubbing has also been applied in the Willey pit, and at neighbouring collieries—Annesley, Hucknall, Shireoaks, Cinderhill, and Kimberley.

Several establishments in this county are working large quantities of coal—Cinderhill, Mr. NORTH's colliery, 800 tons per day, 250 yards to Top Hard; Kimberley, Mr. NORTH's colliery, 800 tons per day; Annesley, 460 yards deep, and Hucknall, 450 yards deep, are opening out in the Top Hard, will each be equally extensive; and Shireoaks, the Duke of NEWCASTLE's colliery, 520 yards to Top Hard seam. The Staveley, Clay Cross, Butterley, Sheepbridge, and other Derbyshire collieries have the same seams as those worked at Eastwood. Coals are worked at some of these to the extent of 100,000 tons per annum. These seams belong to the middle series, and are identified with the South Yorkshire seams, the Top Hard being the Barnsley thick bed. The black shale and Kilburn seams found below the Deep Hard seam are in the lower series, and are identified with the seams worked in the district about Sheffield. Sir R. CLIFTON has lately proved coal by boring on his estate near Nottingham, said to be 4 ft. 7½ in. thick, 187 yards deep, and to be the Top Hard seam.

With all these openings in prospect there will be no lack of a future supply of fuel, more than sufficient, it would appear, for the demand for it; but new sources of coal consumption are continually arising in iron and other manufactures, railways, steam navigation, and for house purposes; the increase of late years having been at the rate of 2½ millions of tons each year, so that this will be fully supplied by the new establishments.

We shall give a Section of the Strata at High Park Colliery in next week's *Mining Journal*.

#### COAL IN NATAL

The coal deposits of Natal were prominently brought before the British Association for the Advancement of Science by Dr. MANN, whose paper will be found in another column of this day's *Journal*. In point of intrinsic value, Dr. MANN places the Natal coal between that of Cardiff and that of West Hartley, the sole drawback of the colonial coal being the percentage of ash and clinker which it contains, and it is believed by many that this objectionable quality will not be retained when depth is reached. The position of the principal coal deposits with respect to the shipping ports has hitherto prevented the coal being worked, and it is hoped that it will now be found possible to get the mineral down to the coast at a price that will permit of its being sold at rates which will induce vessels trading to the Eastern seas to use it as freely as European steam coals. The results of the experiments recently made on board the surveying ship *Hydra*, and just communicated officially to Dr. MANN by the Colonial Secretary of Natal, certainly justify this anticipation. The subjoined table shows the time taken and coal used to get up steam with the three classes of coal, and the result and averages as regards consumption of coal per hour, the same quantity of water being converted into steam in each instance:—

Quality of coal.	Raising steam.	Consumption per hour.
of coal.	Time. Weight.	Third grade. Second grade.

and weight of the machine, offer the requisite resistance to the back thrust consequent on the forcible striking of the cutters against the face of the rock.

The importance of a machine capable of making an average progress of 12 ft. in 24 hours' work in granite will be at once recognised, and there can be no doubt that the invention will be extensively adopted as soon as its merits become more generally known. The introduction of having fewer openings in the cutter head, which give it the form of a Maltese cross, removes the principal difficulty met with in using the machine as originally designed, whilst the improvements in the chisels and other details resulting from experience gained have rendered the machine as near as may be perfect.

With regard to the continuity of the working and the strength of the machine, the statements of Mr. FELLOT, which have already been referred to in the *Mining Journal*, are all that could be desired; he says that the sole interruption in working will be that resulting from the removal of the blunted chisels and the fixing of fresh ones. The changing of the chisels will not, according to Capt. PENRICE, occupy more than two hours. All that is necessary is to draw back the machine a few feet, so as to allow a couple of workmen to pass in front of the head through the openings already mentioned, to remove the worn chisels and replace them with new ones, two other workmen behind the head unscrewing and re-tightening the nuts. As to the strength of the machine, and the absence of vibration, Mr. FELLOT says that the construction of the machine, in general strong, compact, and even heavy, and in particular the dimensions, form, weight, and nature of the percussion cylinder, as well as the mode of work, appear to him calculated to obviate in a great measure the inconvenience of vibration, to remove the causes of rupture in the several parts, and to render the machine durable. The Commission appointed by the French Government to examine the invention have witnessed its operation at the Vaugirard Quarry, and have returned their report to the authorities, but permission to publish the result of the investigation has not yet been received.

#### REPORT FROM NORTHUMBERLAND AND DURHAM.

AUG. 27.—The Coal and Iron Trades show some signs of improvement; for most descriptions of coal and coke the demand is increasing, although slowly, and the stocks held are decreasing. Some excellent orders have also been received on the Tyne at the ironworks, shipyards, &c., including large Government orders received at the Jarrow shipbuilding yards. Steam-ships for the Royal Navy have been ordered there of large size, and of great value, sufficient to keep them busily employed for two years, the total value of such ships being 500,000/. On the whole, the state of trade and commerce is certainly improved, and there is a better prospect.

The deep sinking still continues to go forward at the Felling Colliery, near Gateshead; a depth of 68 fathoms, or 408 feet, has been sunk below the well-known Hutton seam, making a total depth of 1068 feet, and two seams have been passed through, probably the Beaumont and Harvey seams, and it is intended to proceed still further to a considerable depth, when it is expected that another good seam will be reached.

At the British Association meeting a paper has been read by Mr. Jones, and it is there stated that 1,500,000 tons of coal can be saved in the iron furnaces of Great Britain. What quantity can be saved at collieries it will be difficult to estimate, but it must be very large. Jukes's patent furnace is acknowledged to be the best ever brought into use in this district, both as to economy of fuel and entire absence of smoke. But the objections urged against it have been—first, heavy first cost; and, secondly, heavy charges for keeping it in repair; these are the most serious charges brought against it, and, in some cases, the use of them has been discontinued after a trial extending over a considerable period. However, we had lately an opportunity of seeing these furnaces in operation on a large scale at the Pelton Fell Colliery, where eight of these excellent furnaces are working, and they appear to give entire satisfaction. Only small coal is consumed, and no clinker is formed, while the ash remaining is very small in quantity, and there is an entire absence of smoke; and what is very important, the repairs extending over a period of two years and upwards have been very light. We have, therefore, in this case a practical example of the advantages connected with the use of this admirable furnace. No doubt great pains have been taken in having the machinery connected with them properly adjusted, and doubtless the cause of their failure, in some instances, may be traced to want of care and close attention in this respect.

There was a good attendance in the Exchange, Middlesborough, on Tuesday. The market was decidedly firmer, but prices remained unchanged, as follows:—No. 1, 46s.; No. 3, 43s.; and No. 4, 42s. per ton. An advance of 6d. a ton was reported from Glasgow, and this improved the Middlesborough market. Although there was no rise in the Tees-side price for immediate delivery, parcels of pigs were sold for delivery next year at considerably advanced quotations. In finished iron there was not much change. There is a good demand for rails, but shipbuilding iron is far from brisk.

The adjourned inquest on the body of the man killed by the explosion at Thrushington was held on Tuesday. Mr. Atkinson, Government Inspector of Mines, was present, and Mr. William Woods, viewer, represented the owners of the pit; there were also present Mr. J. Smith, viewer of Thornley Colliery, Mr. W. Armstrong, viewer of Wingate Grange, and Mr. Fletcher and Mr. Watson, underviewers at Coxhoe Colliery. After a most careful investigation the jury returned a verdict of "Accidental Death."

The Bedlington Ironworks were offered for sale by public auction, at the Queen's Head Hotel, Newcastle—Mr. N. Hurst, auctioneer. The mansion-house, works, cottages, and entire plant, tools, and accessories necessary to the current going of the works, were included in the concern, which was offered for competition in its entirety. After a few bids it was deemed desirable to put in the reserve bid of 10,000/, and the property was subsequently withdrawn. One of the company offered to negotiate for the works alone, and it was agreed that in the course of a few days arrangements should be made for him to do so.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

AUG. 27.—The various ironworks in North Derbyshire still continue rather quiet, and at but few of them are the men kept what may really be called fully going. This state of things has now lasted a considerable time, and from enquiries made there does not appear to be any immediate prospect of a material change for the better. At Clay Cross it appears that the furnaces have been out, whilst at other places only a part are in blast. The works at Oakthorpe are still standing, although for some time past it has been rumoured in the locality that the two furnaces were about once more to become a beacon for the neighbourhood. There is a little more doing at some of the collieries, but the improvement has been so slight as to be, so far, almost imperceptible. To London the tonnage for the month is not by any means so large as might be expected, considering that consumers' stocks must have become very low, owing to the small consumption which must have taken place during the excessive heat of the last two months. Orders, however, may now be expected to come in more freely, and a much better state of things may be looked forward to. To Birmingham and the Midland Counties a moderate tonnage continues to be sent, but there is no alteration in the business doing from the Burton district to the West of England. As a somewhat singular fact, it may be stated that one of the principal brewery firms in Burton is importing coal from Wales, although there can be no doubt that a good, and in every way suitable, coal could be obtained less than a dozen miles from the town so famed for its "bitter, mild, and pale," and as a matter of course, at a much less price. Just now there is a little more quietness in the northern part of the county than there has been for the previous two months, the candidates for parliamentary duties having exhausted themselves, and left the work to their "friends," who content themselves with occasional squibs and cartoons, more amusing than pointed. It may, however, be stated that Sir R. Gresley, Bart., a large landowner and mineral proprietor, is a candidate for South Derbyshire, and, it is said, with very fair prospects of success.

The improvement in several branches of the Sheffield trade, previously noticed, still continues, and some of them are becoming quite active. In heavy steel goods and railway material many firms are now fully going. On the other hand, however, there is not much alteration in the general cutlery businesses, although some of the houses more immediately connected with the colonies are doing pretty well. In the neighbourhood of Rotherham, matters appear to have taken a turn for the better, and the large ironworks there are gradually improving in activity, and give promise of being kept well going during the autumn and winter. At Milton and Elsecar also business continues good in nearly all departments.

The South Yorkshire Coal Trade remains without much alteration, but if there is any change it is for the better. In steam coal a very good busi-

ness continues to be done with Grimsby for the North of Europe, and, in all probability, will continue so long as the Baltic ports remain open. The demand for London does not improve, and, so far, there has been no intimation of a reduction of the rate being made on the part of the Great Northern Railway Company. Indeed, the confident manner in which Mr. Watkin spoke of a reduction taking place, through the intervention of the Manchester, Sheffield, and Lincolnshire Company, it would appear was not warranted by what has since transpired, as it is stated that the Great Northern have declined to alter the rate, but have suggested to Mr. Watkin that his company had better make a reduction on their line. To Lancashire there is a very moderate business being done, and the demand for house coal and engine fuel is of a very moderate character. Coke continues in very good request, both for the home works and for exportation.

Mr. Edw. Wilson, colliery proprietor, Farnworth, was summoned before the county magistrates at Bolton, for neglecting to provide sufficient ventilation in his mine. Mr. Dickinson, Government Inspector, and a collier in the defendant's employ, proved that on the 12th inst. there was black-damp in several places in the pit, in such quantities as to endanger the lives of the men at work. The underlooker's excuse was that several "faults" had taken place in the roof through which gas had accumulated.—Mr. Dickinson remarked that the matter might have been easily remedied by bratticing, or by laying air-pipes to the places choked with foul damp.—The magistrates fined Mr. Wilson 6d., including costs.

#### REPORT FROM SCOTLAND.

AUG. 26.—By a speculative movement there has been a scarcity of Pig-Iron warrants, and "bears" requiring to cover their sales, prices have stiffened this week, and a large business was done yesterday at 52s. 10d. cash, and 53s. one month, with an advance in some brands of makers' iron of from 6d. to 1s. 6d. per ton. This increase is purely on account of speculation, although there are considerable exports to America, and an increased home demand from founders and malleable ironworks. The shipments this week from all the Scotch ports of pig-iron are short of the corresponding week in last year, being only 9250 tons, against 14,860 tons. The imports from Middlesborough are on a large scale, and contracts are being entered into for regular supplies for a period of several months forward, by firms who formerly used nothing but Scotch pigs. To-day about 8000 tons were done at 52s. 10d., and 53s. cash, and 53s. 1d. and 53s. 3d. one month, closing buyers 53s.; sellers, 53s. 1d. cash. No. 1, Coltness, 53s.; Gartsherrie, 57s. 6d.; Glengarnock, 56s.; Langloan, 51s. 6d. Malleable iron is meeting with spirited demand since prices improved, and the number of specifications have increased. This is partly owing to the fact that the orders for fall shipment have been too long delayed, and partly to the surmise that iron is on the eve of a rise, and we hear that firms here are refusing to quote for shipment a few months hence. The following brands are now 6d. 12s. 6d. per ton:—Coatbridge, Coats, Clifton, Drumpeller, Gartesh, Monkland, Mossend, Muirkirk, Phoenix, and Rothesloch; the remaining brands are quoted 7d.—Blochairs, Glasgow, Govan, and North British. Rails are as last quoted, with some enquiries for railway material for the North of Scotland and New Zealand. Ironfounding is better, and altogether there is a healthier tone in this market.

The RICHARDSON PROCESS OF PUDDLING, noticed by us some time ago, is making satisfactory progress, as worked by Mr. Beardmore, at Parkhead Forge, near Glasgow. A new hooded-rabble is being used, which prevents the disengaged silicon from being blown upwards to the top of the furnace, and adhering there, to the injury of the roof; it also prevents the sparks from showering through the stopper-holes on the hands and other exposed parts of the puddler while at work. Mr. Beardmore testifies to the superior quality of the iron made by the Richardson process from mixtures of commonest pigs, and also to the fact that it produces no bad iron. Further improvements of this process form the subject of a joint patent between Messrs. Richardson and Beardmore. At some works in England the use of the tubular rabbles has been supplanted by injecting the blast through a pipe introduced through openings, and the iron produced is said to be excellent in quality. At Parkhead an alternate admission of steam and air has been tried through a central vertical pipe with varying effect. The process, as a whole, may be said to be a practical success, and of great utility.

Cools are slow in improving, and the demand is again failing. Main or shipping coals are quoted 5s. 6d. to 6s.; household, 7s. to 7s. 6d. a ton; burnt coal, for steamers, 11s. 6d. to 12s. 6d. a wagon, all f.o.b. in the Clyde. During the week the shipments foreign and coastwise were 24,110 tons, against 39,980 tons in the same week of last year, making a difference of nearly 16,000 tons.

The miners at Govan Colliery are now out on strike, having refused to accept of 6d. advance offered by the proprietor. On Friday evening last, having got lessons in "rattening," a motley group, preceded by a flute band, marched up to a house in the Cathcart-road, occupied by a man named Dicks and his four sons, all of whom are employed at the Govan Colliery, and smashed every pane of glass in the windows. The cause of the outrage was the refusal by the Dicks to take part in the present strike. Colliers were brought down from England last week for this work, but they were intercepted by the Union men and sent back. A portion of the miners who had been on strike in the districts of Helensburgh and Galston, Ayrshire, having returned to their work, a novel method of intimidation was resorted to by the party who remained out. A meeting of colliers' wives, called by the common banner, was held on the banks of the Irvine, and a resolution unanimously carried to the effect that the infamous "black nebs" should be assailed whilst on their way home from the pits. Accordingly a large crowd of women, girls, and young lads collected in the afternoon on the roads leading to the various collieries, and when the men in question made their appearance they were met with a perfect storm of hooting and opprobrious epithets. Several volleys of stones were also discharged at them by the rioters, and several are said to have been severely injured. Threats were freely expressed that the "black nebs" would be attacked on their way to the pits next morning, but a strong detachment of police being then on guard the rioters did not make their appearance. A number of the leaders having been apprehended were taken before the magistrates at Galston, on Monday, and handsomely fined for their Amazonian exploits.

The miners of Fifeshire held a meeting in Dumfermline, on Monday, when Mr. McDonald informed them that the 4800 miners in Fife worked more than 11 hours a day for 1s. less than the miners in the other districts, who worked shorter hours. This had the effect of getting the Fifers to immediately agree to a resolution to go and demand an advance of 1s. a day from their employers. They were further instructed to vote for Mr. H. Campbell for their district burghs, who is unconnected with and unskilled in mining operations.

The Clyde shipbuilders keep busily employed, new keels being laid down on every vacated stage with great rapidity. During the week there was launched from Govan a gunboat of composite construction, built to order of Her Majesty's Government, and intended for service in the China Seas. She was named the Hart, is of 500 tons, and 120-horse power engines, trunk horizontal arrangements, with double screw. Also there was launched, by Caird and Co., Greenock, another magnificent screw-steamer, of upwards of 3000 tons, for the North German Lloyd's Company, which was gracefully named "Main" by Miss Wagmann, of London. The Main will be supplied by Messrs. Caird and Co., with engines of 600-horse power, and will ply between Bremen and New York, via Southampton. During the past three months Messrs. Caird and Co. have launched on the 22d of each month a steamer of upwards of 3000 tons, the value of which when completed will be upwards of 250,000/. Another steamer of equal tonnage will be launched for the same company by Messrs. Caird in a few weeks.

#### MR. JAMES MERRY, M.P. FOR THE FALKIRK BURGHS, AND MR. ALEX. McDONALD, MINERS' SECRETARY.

Last week Mr. MERRY, M.P., addressed between 1500 and 1600 of the electors and non-electors of Airdrie in the Public Hall of that town, and, on a show of hands being taken, Mr. MERRY was declared to be a fit and proper person to represent that constituency in Parliament. Immediately after the member's address was concluded a motion was visible at the door of the hall, out of which issued, like an exhalation, Mr. ALEXANDER McDONALD, secretary of the Miners' Association for Scotland. His entrance was announced by a mingled hurricane of cheers and hisses. The question as to whether he should be permitted a *locus standi* on the occasion was acknowledged *ex gratia*, when he commenced "heckling" the hon. member, by putting a series of miners' questions, which appeared to be regarded by the interrogator as wholly unanswerable in favourable terms. As the questions consisted principally of queries which form the staple of miners' grievances, we notice a few of the leading ones, and Mr. MERRY's replies.

Mr. McDONALD: Would Mr. MERRY support a measure in Parliament where by a large increase of Inspectors of Mines would be made, and also a body of sub-Inspectors appointed, so as to have the inspection properly carried out?—Mr. MERRY said he certainly would support such a measure. He thought it for the interest of every mine owner to have his works well inspected and looked after, and he had no objection whatever to additional Inspectors being appointed.

(Cheers.) But he certainly would object to sub-Inspectors, for the reason that they would take considerable responsibility off the head Inspectors, and also because they were very likely to create a good deal of contention with the workers and managers. (Applause and hisses.)

Mr. McDONALD: Would Mr. MERRY support a measure to make mine owners responsible for the conduct of their managers when they neglected their duty? (Cheers, and much hissing)—or, in other words, would he vote for a bill to reverse the decision of the House of Lords in the case of "WILSON v. MERRY and CUNNINGHAME." (Laughter, applause, and hisses.)

Mr. MERRY: I really think that Mr. McDONALD must anticipate my answer to that question. (Laughter, and a voice, "I think so too.") I cannot agree to such a measure—(hisses)—nor do I think it would be advantageous to the workmen. (Cheers and hisses.) The law is now laid down by the most learned law lords of England, Scotland, and America, and with that law I am perfectly satisfied. (A voice, "So you ought.") Laughter and hisses.

Mr. McDONALD next asked whether the hon. gentlemen would support a measure that would have the effect of restricting the labour of the young in mines

to eight hours in every twenty-four?

Mr. MERRY: I am quite satisfied that it is not for the interests of mine owners

to have the children longer than eight hours in the pits. I really think, Mr. McDONALD, such a measure would not be at all necessary. I think that the old men scarcely stay that number of hours in the pit. (Laughter, applause, and hisses.)—Mr. McDONALD (speaking very loud, and emphatically)—Mr. MERRY very cleverly evades the question. I ask him categorically will he—no or yes?—Mr. MERRY (also loud and emphatically)—Categorically, yes. (Roars of laughter.)—Mr. McDONALD: Will Mr. MERRY support a measure to have the imperial standard weights on every pit-head in the country, and to order the Inspector of Weights and Measures to inspect these weights as he inspects those of grocers and other persons who sell merchandise? (Applause.)

Mr. MERRY: I was not aware that colliery weights were different from the general weights of the country, but I certainly would support such a measure, I think that colliery weights should be the legal standard weights of the country, and as you say, the same as are used by grocers and other merchants, and the Inspector should at all times be enabled to see that they are so. (Applause.)

Mr. McDONALD: Would Mr. MERRY, in the event of being returned to Parliament, support a measure that will empower the workmen to appoint their own doctors and their own teacher?—(near, hear)—Instead of, or, as at the present time, the employers appointing them and compelling the workmen to pay?

Mr. MERRY: I certainly will do so; and I am astonished that Mr. McDONALD, who is so well acquainted with mining matters, is not aware that this is what I myself have practised all along. (Applause.) If you don't know it, let me tell you now, Mr. McDONALD. (Laughter.)

Having thus, after such a display of girding on of armour, to leave the field completely vanquished on every point which he touched, Mr. McDONALD called on his retainers to follow him, when about a third of the audience complied, who were chagrined and crestfallen.

We regret that there is no apparent likelihood of Mr. ALEXANDER McDONALD being selected to represent any constituency in the Parliament about to be constituted. For to air his grievances and charges in such an assembly would be simply to establish their hollowness in the presence of many worthy and philanthropic gentlemen, who presently believe in their soundness. Mr. McDONALD has learned from the poet that—

"A bold assertion, next to truth,

"Does well."

And practises it on those who will give him credence. Suppose him, in the House of Commons, confronted with an antagonist like Mr. MERRY, what could "Dear Elcho" think of the story of his *protege*, or of his house of cards? The opportunity which Mr. MERRY afforded this modern Goliath of questioning him on matters connected with the welfare of the mining population, in the capital of the coal fields of Lanarkshire, will go far to show every enlightened lover of his fellowman that the accusations brought against the mine owners of this county are misrepresented and intensified by officials who live on the credulity and pence of their dupes. In his replies, Mr. MERRY evinced a consciousness that he was addressing those who were familiar with the whole subject; and the *naïveté* with which he replied to the coquetry of his questioner was scarcely less admired than the home truths which nonplussed his swaggering assailant. "All's well that ends well!"—McDONALD went home discomfited!

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

AUG. 27.—The Iron Trade presents no new feature. It is better, but not very brisk. Orders come in tolerably well, but, as a rule, for small amounts. The Hardware Trades are in much the same condition. The tide has fairly turned, but as yet it runs slowly. The works employed in producing railway plant at Wednesbury, Salfley, Smethwick, &c., are busier. The Staffordshire Wheel and Axletree Company, though it does not pay any dividend, seems to be getting into gear. The Metropolitan Wagon Company pays 10 per cent. dividend, although times have been so dull, and it has a large balance at its bankers, for which it receives, perhaps, only 1 per cent. The Birmingham Small Arms Company, however, pay 20 per cent. The *Pall Mall Gazette* announces amongst the features of England's new breech-loading rifle decided upon that it is to be made of steel, which is good news for the proprietors of the patent for making steel tubes by punching.

The Liberals at Wednesbury have at length selected their candidate, and, as was generally expected, Mr. Alexander Brogden had an overwhelming majority of votes at the meeting of the representatives of the four towns comprising the borough. Mr. Walter Robinson, as he had promised, honourably retired, but Mr. Robert Malcolm Kerr lingers, though he said he would accept the voice of the committee, and though he had very few votes. Dr. Kenealy declined to recognise the committee in which he did not get a single vote. Mr. Brogden, if elected, as is almost certain, should the Liberals not divide, promises to be a thoroughly good member, really able, alike from experience, ability, and interest, to represent a borough which contains the centre of the Black Country.

In the Staffordshire Potteries, Board of Arbitration for settling disputes between masters and workmen is being established, and Mr. J. Ayshford Wise, formerly member for Staffordshire, and who paid considerable attention to the subject of courts of conciliation, presided at a meeting on Wednesday evening at Hanley, to support the representatives of the operatives. We seem to be approaching the "constitutional system" in trade disputes, and passing out of arbitrary rule. Let us hope that we shall be able to avoid disputes, or, at any rate, to settle them without social war—a strike.

would break out before long; but at present there does not appear to be any grounds for such fears, as the policy of the French Emperor is evidently one of peace. In the home trade a greater degree of cheerfulness prevails than has been known for some length of time, and strong hopes are now entertained that the trade will before long attain a position that may be termed something like satisfactory. The Lancashire and Yorkshire Railway Company are advertising for tenders for from 2000 to 5000 tons of rails, and as stocks are known to be exceedingly low in the hands of the railway companies it is very probable other companies will speedily follow. There appears to be some signs of a revival in the iron shipbuilding trade, and this will, no doubt, cause an increased demand for plates. Enquiries for pigs of the best brands are steadily increasing, and prices have a tendency to harden. Tin-plate makers have an average number of orders on their books, and the various mills in the district are kept going with something like regularity.

Steam coal proprietors are not doing the amount of business anticipated a week ago, and although there are a number of vessels lying at the local ports, a great many of them are not of the tonnage merchants and shippers require. The wind, also, has not been favourable for vessels to leave the docks, consequently shipments are not so speedily made as could be desired. The principal demand is from the mail packet stations, enquiries from the Mediterranean and French markets having again slightly decreased. There is no material decrease in the output at the collieries, and at some of the principal sidings a large quantity of coal has accumulated. There are more enquiries for house qualities than there has been for several weeks past, but the present position of the trade is far from good.

The employees at the Ynyspenlwyd Tin-Plate Works feeling de-sirs of exhibiting their regard and esteem for their late superintendent, Mr. THOMAS REES, upon his leaving to take charge of the Hendy Tin-Plate Works, at Pontarddulais, and of acknowledging their appreciation of his uniform kindness and uprightness during a period of 30 years, in which he was associated with them under the late Mr. Llewellyn Glais, Mr. Henry Strick and a numerous company met at the Masons' Arms Inn, Glais, Clydach, for the purpose of presenting Mr. Rees with a handsome gold watch and chain, appropriately inscribed, and which had been liberally and cheerfully subscribed for by the men employed at the works, and a few other friends. The presentation was made by Mr. John Williams, one of the oldest hands in the works, in a very appropriate speech; after which Mr. Rees replied in a very feeling manner, remarking that he had valued their esteem and regard above all other things, and that he would continue to merit it.

A fatal accident occurred last week at the Glaynes Colliery, the property of Messrs. Sims, Wilyams, Nevill, and Co. A bunksman, named Thos. Richards, accidentally pushed one of the trans to the pit's mouth when the cradle was at the bottom, and in endeavouring to stop it both he and the trans fell into the pit. The body was dreadfully mangled, and the poor fellow has left a widow and seven young children totally unprovided for.

On Tuesday an interesting meeting was held in the pattern shop of the Crumlin Viaduct Works, belonging to the Messrs. Kennard. The meeting consisted of the friends of Mr. J. M. WILSON, late cashier of the works, and many of the employees, who had met together for the purpose of expressing their good will towards Mr. Wilson, who was leaving Crumlin on account of ill health. After some complimentary remarks had been made by the Chairman, Mr. Davies, one of the employees, presented Mr. Wilson with a handsome and beautifully-executed portrait of himself, and a purse containing 38 sovereigns, for which Mr. Wilson expressed his thanks, and gave an interesting account of the progress of the Viaduct Works during the 15 years he had been connected with them.

At the Taff Vale Wagon Company's half-yearly meeting (presided over by Mr. Hutchins) the report stated that the redemption fund had been increased this half-year by the sum of 3768L 19s. 9d., which with the amount un-invested in Dec. 31, 1867, made a total of 9999L 4s. 8d. remaining in the hands of the Taff Vale Railway Company on call at 4½ per cent. per annum, until permanent investment was effected.

#### MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

The CWM DARREN MINES (Cardiganshire) have been purchased by a new company, with a view to utilising them to the fullest extent. A party of miners have taken a contract to sink the engine-shaft on the lode a stent of 10 fathoms below the 10 fathom level—the present deepest level in the mine—per a contract of 120L. The lode has improved in yield in the last 5 fathoms sinking from a promising lode to a quantity of silver-lead ore, worth 4 cwt., to 5 cwt., per cubic fathom. It is fair to suppose that this formation of ore will continue to improve, and that good results may be expected without a long delay. Weekly reports of the progress of the works will be published in the Journal, and we heartily wish success to the undertakers of such a valuable work.

WHEAL MARY FLORENCE.—The opening out of this mine is watched with great interest, and although nothing is at present being done on the lode, yet the points in operation are likely to issue in good results. Saw's shaft, which is in course of sinking by nine men, is down over 8 fathoms below the 15 towards a 25 fathom level, where the lode will be again intersected, and should it be found productive, as there is every reason to expect, the share must have a great rise. There is a good lode in sight at the 15, but cannot be taken away to advantage until the rise now being carried up, by six men, be holed to the deep adit, which will soon be accomplished, and give perfect ventilation to the mine throughout, so that additional hands may be employed to open out productive and profitable ground, which is likely to amply reward the fortunate holders for their perseverance and outlay.

OKEF TOR.—A most important discovery of ore has been made here in driving a western cross-cut in the 65 fathom level. The south lode has been intersected, and getting into a rich course of yellow copper ore; its size is not yet ascertained, but the ore breaking from the end is very solid. This is likely to prove the best discovery yet made, as it shows the ore is making back towards the engine-shaft.

LYD RIVER SILVER-LEAD MINE has been again surveyed by Mr. W. V. Williams, whose experience in connection with mining is well known, and his report is of a satisfactory nature. A shareholder, who accompanied him, says, "It is with great satisfaction I state that, as far as my investigations have gone, I have found everything in strict accordance with the statements issued in the prospectus for the formation of the company, and I do not hesitate in recommending this mine to anyone who may ask my opinion, for it is such a profit that will, in all probability, shortly speak for itself in returns and sales of high-price ore."

PENHALE UNITED SILVER-LEAD MINING COMPANY.—A telegram received at the offices on Tuesday morning announced an improvement in the 90 fathom level, south of Phillips's engine-shaft. The lode is reported to be now worth 1½ ton of silver-lead per fathom, and some splendid specimens have been sent to Mr. H. L. Phillips's office, 32 New Broad-street, one rock weighing over a hundredweight. Should this ore ground continue in depth Penhale will not be long in taking a prominent position among successful mines.

BEDFORD UNITED may be considered to have established a new mine on the Tavistock lode, north of the old mine, in the 90 fm. level, where the lode is reported to be worth from 8 tons to 9 tons per fm. In the 75 fm. level the lode is worth 6 tons of good ore per fm. They have only to work a little longer to open out ground, and they cannot then help paying good and regular dividends. The old mine paid dividends regularly for nearly 20 years. Captain Phillips deserves great credit for the spirit with which the mine has been worked.

THE PRINCESS OF WALES MINE, adjoining the Prince of Wales, is looking well, and producing from the end some fine stones of ore. They intend now to go on with spirit—a 50-in. engine is bought, with 20 tons of boilers. The foundations are out, and all is to be completed in four months. There is no doubt of its proving a good mine.

NANGILLES MINE.—The prospects here were never better. A most important improvement is shortly expected in the north cross-cut in the 130 fm. level. The underground manager states—"The driving of this cross-cut will explore one of the most important pieces of mining ground in the county of Cornwall. The lodes which pass through it have proved, in the adjoining mine, the richest that have been found in the county." The adjoining mine is the Consolidated Consols, shares in which once rose to 900L each, and 47,000L yearly was paid in dividends, and the dividends paid amounted to about 1,500,000L. All the lodes of this property pass into the Nangilles Mine, which is in 1024 shares only. Investors would do well to turn their attention to this mine at the present low price. There is not a more promising progressive mine in Cornwall. Nangilles shares rose from 6L to 36L in 1864, and will do so again. The mine is being closely watched by certain parties.

NORTH LEVANT.—Through the energy and perseverance of all engaged in the working of this valuable old sett they are realising good returns, and the mine looks better than ever; in fact, it is stated that the time is close at hand for making good profits. It must be satisfactory to the adventurers to hear such good news from one of the richest districts in Cornwall, and there is no doubt but that North Levant will prove a rich and lasting dividend-paying property.

GOTHIC.—This little mine is quietly and unobtrusively working its way towards soon becoming one among the best and lasting mines in the county of Cardigan. The lowest level is again becoming productive, and will, it is anticipated, yield up to surface large quantities of ore, the sales of which will now be resumed regularly under its present able management.

AT LOVELL CONSOLS the works are being pushed on with all speed to get under the tin ground passed through in the level above. The ground is congenial for tin, and no doubt by a little more patience the same reward will be reaped as in the neighbouring mines. It is without a doubt a cheap speculation, considering the number of valuable lodes known to pass through the sett.

GREAT SOUTH CHIVERTON.—The lode in the 40 west has further improved, and will now produce 4 cwt. of lead per fm.; and the appearances are decidedly in favour of a further improvement within another week. This end is now getting under the run of lead ground passed through in the level above. The 50 improves as they drive west, and the manager is confident that lead will shortly be met with. In the 20 east they have a lode which will pay for working, and a 40 fm. level east has just been commenced, to get under the rich blonde lode open in the 20. Altogether, the mine is looking much better, and will, it may be fairly expected, prove one of the greatest prizes of the district, and thus verify the anticipations of the respected manager.

#### In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL UNITY CONSOLS MINING COMPANY.—TO BE SOLD, under the direction of the Registrar of the said Court, BY PUBLIC AUCTION, on Tuesday, the 8th day of September next, at Eleven o'clock in the forenoon, at the WHEAL UNITY CONSOLS MINE, in the parish of Gwinnear, within the said Stannaries, either together or in lots, the undermentioned

##### MINING MACHINERY, MATERIALS, AND EFFECTS, viz.:-

ONE 40-in. cylinder PUMPING ENGINE, with TWO 10-ton BOILERS, complete.

ONE steam WHIM ENGINE, 26-in. cylinder, with ONE 6-ton BOILER. Capstan, vice, and a variety of other articles and effects in general use in mines.

For leave to inspect the same, apply to Mr. THOMAS BASSETT, in charge thereof.

HODGE, HOCKIN, AND MARRACK, Truro

(Agents for S. T. G. Downing, Solicitor, Redruth).

Dated Truro, August 25, 1868.

#### In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the CLOWANCE WOOD MINING COMPANY (LIMITED).—TO BE SOLD, under the direction of the Registrar of the said Court, BY PUBLIC AUCTION, on Monday, the 14th day of September next, at Eleven o'clock in the forenoon, at the CLOWANCE WOOD MINE, in the parish of Crowan, within the said Stannaries, the undermentioned

##### MINING MACHINERY AND MATERIALS, viz.:-

ONE 60-in. cylinder PUMPING ENGINE, with 10 ton BOILER.

Shears, 60 ft. high, with sheaves; 8 arm capstan; horse whim, with shaft tackle, sheave, pulleys, and stands; 1 12 ft. 10 in. working barrel, 1 4 ft. 11 in. matching piece, 2 tackles, knocker and line, boring bull, small beam and scales, 2 brass bottom sieves for jiggling machine, several cwt. of iron, dry house, carpenter's shop, 12 ft. 9 in. 13 in. pumps, 14 ft. 9 in. 10 in. ditto, 1 6 ft. 13 in. slack seat piece, 1 12 ft. 12 in. working barrel, 1 9 ft. 12 in. windbore, 1 6 ft. 10 in. rod, 1 10 in. H and door piece, 1 10 ft. 10 in. pole case, 1 11 ft. 10 in. pole, stuffing box and gland, 100 ft. 12 in. wood rods, 4 pair of strapping or rod plates, knocker line, 20 fms. 2 in. bucket rods, staples and glands, pump rings, rod and flange bolts, and 40 fathoms air pipes; together with the account house and office furniture, and a variety of other articles and effects in general use in mines.

Further particulars may be had on application to the officer in possession.

HODGE, HOCKIN, AND MARRACK, Truro

(Agents for Matthews and Greetham, Solicitors, 68, Lincoln's Inn-fields, London).

Dated Registrar's Office, Truro, August 25, 1868.

#### In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the GARLIDNA UNITED MINING COMPANY.—TENDERS will be RECEIVED at the Registrar's Office, Truro, until WEDNESDAY, the 9th day of September next, stating the highest price which will be given for the 24 in. cylinder STAMPING and DRAWING ENGINE, with fly-wheel and cage complete, at GARLIDNA UNITED MINES, in the parish of Wendron, within the said Stannaries.

The above may be inspected on application to SAMUEL VERCOR, in charge thereof.

HODGE, HOCKIN, AND MARRACK, Solictors, Truro

Dated Registrar's Office, Truro, August 25, 1868.

#### In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL LUDCOTT AND WREY CONSOLS MINES COMPANY.—The Registrar of this Court has appointed TUESDAY, the 8th day of September next, at Eleven o'clock in the forenoon, at the Registrar's Office, in Truro, to SETTLE THE LIST OF CONTRIBUTORIES OF the ABOVE-NAMED COMPANY, now made out and deposited at the said office.

WM. MICHELL, Registrar of the said Court

Dated the 26th day of August, 1868.

#### In Chancery.

#### BEESTON MANOR COLLIERIES AND IRONWORKS, LEEDS.

TO BE SOLD, BY AUCTION, pursuant to a Decree of the

High Court of Chancery, made in a Cause of Dawson v. Cropper, with the approbation of His Honour the Vice-Chancellor Sir RICHARD MALINS, by Mr. THOMAS SCRABE BEST (of the firm of Messrs. Hardwick, Best, and Young), the person appointed by the said Judge, at the White Horse, in Leeds, on Wednesday, the 9th day of September, 1868, at Two o'clock p.m. precisely.

The IMPORTANT COLLIERIES AND IRONWORKS, late the property of Messrs. A. Harding and Co., at BEESTON, held under several leases from the Lords of the Manor of Beeston and Sir Thomas Beckett, the trustees of Matthew Batson, Esq., and others, comprising the following BEDS OF COAL and IRONSTONE:—

The BEESTON BED of COAL, of which about 85 acres were ungot in Oct., 1867.

The BLACK BED of COAL, of which about 145 acres were then ungot.

The CROW COAL.

Also the UPPER and LOWER BEDS of IRONSTONE, one of them lying above the Beeston Bed of Coal, and the other lying between the same and the Black Bed of Coal.

Together with the above Collieries and Ironworks, will be sold the ENGINES, RAILWAYS, ROLLING STOCK, and PLANT of every description.

Particulars and conditions of sale, and further information may be obtained, gratis, in London, of Messrs. HAWKINS, PATERSON, SNOW, and BURNETT, of No. 40, Chancery-lane; Messrs. CHESTER and URGUHART, of Staple Inn; and in the country of Messrs. DIBB and ATKINSON, Solictors, Butts's-court, Leeds; Messrs. BRETT, HANKINSON, and KEARSLEY, Solictors, Manchester; Messrs. HARDWICK, BEST, and YOUNG, Auctioneers, Leeds; and at the place of sale.

PREDC. BRS. EDWARDS, Chief Clerk

Dated this 23d day of July, 1868.

#### GREAT WHEAL FORTUNE, BREAGE, CORNWALL.

THE WHOLE of the MACHINERY and MATERIALS, consisting of a 40-in. cylinder STEAM PUMPING ENGINE, 24 in. cylinder STEAM WHIM, BOILERS, PITWORK, &c., on the Carnmeal part of this mine, are hereby OFFERED FOR SALE, in One Lot.

Several of the present shareholders would join a new party to continue the operations, and a new lease can be obtained.

By driving a cross-cut south about 8 fms. in the bottom or 150 fm. level, a lode will, it is considered, be intersected, which must in depth meet the Carnmeal lode, and if the former should be found productive of tin, every reasonable conclusion may be drawn, from corresponding results of the locality, that a profitable mine may be quickly opened up. There are also other points of interest and promise.

The agents at the mine will afford every facility for inspection, and further information may be obtained on application, by letter, to the purser, Mr. T. W. ROBINSON, 11, Penrose-terrace, Penzance.

Tenders for the above will be received by the committee, at Crotch's Hotel, Hayle, on Tuesday, 1st October, at Three o'clock p.m.

Dated Great Wheal Fortune, Aug. 19, 1868.

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**RAILWAY WAGON WORKS, BARNESLEY.**  
**M E S S R S . G . W . A N D T . C R A I K**  
 ARE PREPARED TO  
 SUPPLY COAL AND COKE WAGONS  
 OF EVERY DESCRIPTION,  
 Either for cash, or by deferred payments through wagon-leasing companies,  
 WAGONS PROMPTLY REPAIRED.

**COAL WAGONS.**

**RAILWAY WAGONS**, capable of CARRYING SIX TONS OF COAL, TO BE LET by the MONTH or YEAR, upon favourable terms. Address, B Box, Post-Office, Hereford.

**LOCOMOTIVE TANK ENGINES FOR MINES AND COLLIERIES.**

**H E N R Y H U G H E S A N D C O .**,  
 FALCON WORKS, LOUGHBOROUGH,  
 Have ALWAYS IN PROGRESS, and can SUPPLY at short notice.

**TANK ENGINES**

To suit any gauge of railway and gradients from 1 in 16.

**THE BEVERLEY IRON AND WAGON COMPANY (LIMITED),**

**MANUFACTURERS OF RAILWAY WAGONS, WHEELS, AXLES, LORRIES, CARTS, WOOD WHEELS, &c., IRONWORKS, BEVERLEY, YORKSHIRE.**

**TO MANUFACTURERS OF YELLOW METAL MERCHANTS, AND OTHERS.**

**CAUTION.**

WHEREAS, it has recently come to the knowledge of the directors of ELLIOTT'S PATENT SHEATHING AND METAL COMPANY (LIMITED) that quantities of YELLOW METAL made by other manufacturers have been exported to India and elsewhere, bearing a FRAUDULENT IMITATION of the exclusive BRAND or TRADE MARK of the company for Metal of that description—namely, a representation of a Rupee, with or without the word "soft" printed thereunder,

NOTICE IS HEREBY GIVEN, that in case any manufacturer, or other person, shall STAMP, IMPRESS, or AFFIX to or on any YELLOW METAL, not made by the said company, the said BRAND or TRADE MARK, or any colourable imitation thereof,—or in case any merchant or other person shall EXPORT or SELLS any such Yellow Metal so marked as aforesaid,—PROCEEDINGS will forthwith be COMMENCED against such manufacturer, merchant, or other persons, to RESTRAIN him or them from such wrongful acts as aforesaid, and RECOVER DAMAGES in respect thereof.

RYLAND AND MARTINEAU, Solicitors to the said Company.

Birmingham, August, 1868.

**ENGINES AND BOILERS FOR SALE.**

**M E S S R S . N I C H O L L S , M A T H E W S , A N D C O .** have FOR SALE ENGINES OF VARIOUS SORTS AND SIZES, AND SEVERAL GOOD TEN TON BOILERS. All are in excellent condition, and well worthy the attention of purchasers.

Full particulars may be obtained by applying to Messrs. NICHOLLS, MATHEWS and Co., Tavistock Foundry, Tavistock.

**WELSH SLATE QUARRY.**

**G R E E N A N D B L U E S L A T E Q U A R R Y .**—Within 150 yards of a railway-station, and with a main line of railway passing through the property—and within two miles of a shipping-port, accessible by the same railway to the ship's side.

The OWNER of this VALUABLE PROPERTY is OPEN to TREAT either for PARTNERSHIP or a COMPANY. In either case he desires to retain a moiety of the property. There is ample tip, the slates are of the finest colour and quality, and the working (without machinery) will be of the most inexpensive kind. The slates have been proved for a century, but the railway facilities have only been recently obtained.

Apply to Mr. THOMAS HARVEY, Segontium-terrace, Carnarvon. 14th August, 1868.

**PIG LEAD.**

**M E S S R S . W E S T O N A N D C O L L I N G B O R N** SOLICIT ORDERS for SOFT PIG LEAD, which they are producing of the very best quality. Prices on application.

WORKS,—SWINFORD, GLOUCESTERSHIRE.

OFFICE,—18, PETER STREET, BRISTOL.

**THE GREAT NORTHERN MANGANESE COMPANY (LIMITED),** WITH WHICH IS INCORPORATED THE BALA MINING COMPANY, NEAR BALA, MERIONETHSHIRE, NORTH WALES.

Capital £15,000 shares of £5 each.

DIRECTORS. RICHARD ROBERTS, Esq., Bala, Director of the Bala Banking Company. Sir EUSTACE FITZMAURICE PIERS, Bart., Manchester. H. SOUTHAM, Esq., merchant, Manchester and Bala.

BANKERS. THE BALA BANKING COMPANY (LIMITED), BALA.

SOLICITOR. ALFRED ORRELL WALMSLEY, Esq., Brown-street, Manchester.

AGENT AND SECRETARY AT MANCHESTER.—Mr. J. K. WILLIAMS

CHIEF OFFICES,—7, SOUTH PARADE, MANCHESTER

The great success of the above undertaking has induced the directors to offer to the public the remaining 2000 shares at a premium of 10s. per share.

The next dividend will be from 7½ to 10 per cent., thus affording a safe and permanent investment to parties having capital at command. The business is carefully managed; the working expenses are kept as low as possible; the directors receive no remuneration until the concern has earned and paid to the shareholders in dividend 7½ per cent. per annum; in fact, so sanguine are the directors that this will be one of the most successful enterprises of the present time, and prove that limited companies, when carefully and prudently managed by honest and honourable men, are the safest modes of investment of capital.

The directors have at present contracts offered for manganese that would absorb their entire production for the next two years.

Prospectuses and terms of application for shares may be had of the manager of the Bala Banking Company (Limited), Bala; or of the secretary, at the company's offices, in Manchester.

**BIRMINGHAM FINANCIAL COMPANY (LIMITED),** OFFICES,—WATERLOO STREET, BIRMINGHAM.

CAPITAL,—HALF A MILLION,

Reserve fund, £2,000.

ADVANCES made upon approved real and other securities.

DEFERRED PAYMENTS on Wagon Leases and other contracts purchased or advances made thereon.

HENRY ALLBUTT, Secretary.

**EMIGRATION TO VENEZUELA.**

**T H E G O V E R N M E N T O F V E N E Z U E L A** have GRANTED a CONCESSION of an IMMENSE TERRITORY in GUAYANA, the most fertile and healthy province of Venezuela, for the purpose of COLONIZATION by the settlement of Emigrants from the Southern States of North America and from Great Britain.

For further particulars, see "THE EMIGRANT'S VADE MECUM, OR GUIDE TO THE 'PRICE GRANT' IN VENEZUELAN GUAYANA."

To be had of FREDERICK H. HEMMING, Consul for Venezuela, 25, Moorgate-street, E.C.; or of JAMES F. PATTISON, Director-General in Europe of the American, English, and Venezuelan Trading Company, No. 3, The Crescent, Americ-square, E.C. Price 2s. 6d.; or by post, 2s. 6d. in postage stamps.

**AMERICAN MINES.**

**M R . R . P . R O T H W E L L ,** Mining Engineer and Metallurgist, OFFICE—WILKES BARRE, PENNSYLVANIA, U.S.

Having a LARGE EXPERIENCE in EUROPEAN AND AMERICAN MINES, can FURNISH RELIABLE INFORMATION on the VALUE OF MINERAL PROPERTY in any part of the UNITED STATES or the dominion of CANADA

THE IRON TRADE REVIEW.—The Iron Trade Review is now

recognised as the leading organ in which the interests of the iron manufacturers of Great Britain are represented. The aim of the proprietors is to provide a journal which shall be worthy of this important branch of national industry. The following matters receive special attention:—Detailed reports of the state of trade in all the important manufacturing districts, with latest intelligence of meetings, and price lists of pig and finished iron. Occasional notices of the Continental and American trades. Condensed information relative to the proceedings of railways and other public companies which have a bearing upon the iron trade. Notices of scientific improvements applicable to the manufacture of iron. Reports on such labour questions as may arise. Notes on Parliamentary Bills bearing on the trade. In addition to the above, leading articles on important topics appear in each issue, and great care is taken that the information contained in the Review shall be thoroughly reliable. The annual subscription is one guinea, payable in advance. Advertisements are inserted on reasonable terms, which may be ascertained on application.—Published for the proprietors, at the Iron Trade Review office, Middlebrough-on-Tees; and 50, Grey-street, Newcastle-on-Tyne, by M. and M. W. Lambert, printers.

**N I C H O L L S , M A T H E W S , A N D C O .** ENGINEERS, TAVISTOCK FOUNDRY, TAVISTOCK. MANUFACTURERS OF STEAM ENGINES OF EVERY DESCRIPTION, made on the BEST and NEWEST PRINCIPLES. We beg more especially to call the attention of the public to the MANUFACTURE of our BOILERS, which have been tested by most of our leading engineers. PUMP WORK CASTINGS of EVERY DESCRIPTION, both of brass and iron. HAMMERED IRON and HEAVY SHAFTS of ANY SIZE. CHAINS made of the best iron, and warranted. MINERS' TOOLS and RAILWAY WORK of EVERY DESCRIPTION. ALL ORDERS FOR ABROAD RECEIVE their BEST ATTENTION. NICHOLLS, MATHEWS, and Co., have had 20 years' experience in supplying machinery to foreign mines, and selecting experienced workmen to erect the same, where required.

Messrs. NICHOLLS, MATHEWS, and Co. have always a LARGE STOCK of SECOND-HAND MINE MATERIALS in stock, and at moderate prices.

**W I L L I A M S ' S P E R R A N F O U N D R Y C O M P A N Y ,** PERRANARWORTHAL, CORNWALL. MANUFACTURERS OF STEAM PUMPING and EVERY OTHER KIND OF ENGINES, together with BOILERS, PUMP CASTINGS, and MINING TOOLS of every description, of the very best quality. Estimates given for the supply of any amount of machinery.

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**R A I L W A Y C A R R I A G E C O M P A N Y (L I M I T E D )** ESTABLISHED 1847. OLBURY WORKS, NEAR BIRMINGHAM. MANUFACTURERS OF RAILWAY CARRIAGES and WAGONS, and EVERY DESCRIPTION OF IRONWORK.

Passenger carriages and wagons built, either for cash or for payment over a period of years.

RAILWAY WAGONS FOR HIRE. CHIEF OFFICES—OLBDURY WORKS, NEAR BIRMINGHAM. LONDON OFFICES,—6, STOREY'S GATE, GREAT GEORGE STREET, WESTMINSTER.

**T H E B I R M I N G H A M W A G O N C O M P A N Y (L I M I T E D )** MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.

EDMUND FOWLER, Sec.

WAGON WORKS.—SMETHWICK, BIRMINGHAM. \* \* \* Loans received on Debenture; particulars on application.

London Agent.—Mr. E. B. SAVILE, 67, Victoria-street, Westminster, S.W.

**S T A F F O R D S H I R E W H E E L A N D A X L E C O M P A N Y (L I M I T E D A N D R E D U C E D )** MANUFACTURERS OF RAILWAY CARRIAGE, WAGON, and CONTRACTORS' WHEELS and AXLES, and other IRONWORK used in the CONSTRUCTION of RAILWAY ROLLING STOCK.

OFFICES AND WORKS, HEATH STREET SOUTH, SPRING HILL, BIRMINGHAM. LONDON OFFICE,—118, CANNON STREET, E.C.

**F . N . G I S B O R N E ' S P A T E N T M E C H A N I C A L B A L A N C E - W E I G H T S I G N A L S F O R M I N E S , &c.**

THESE SIGNALS supply a want long felt in giving INSTANT COMMUNICATION in MINES at SEVERAL PLACES at the SAME TIME without the aid of electricity, but by a single rod or chain; so that a degree of safety is ensured hitherto unknown.

The price is also very low, and the mechanism so simple that any ordinary mechanic could put it in order if out of adjustment.

The same patent, as applied to ships, has received the approval of the Chief Engineer, Chatham Dockyard (vide *Times*, Aug. 13, 1868).

SOLE AGENT FOR MINERS:

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N.B.—Mr. JERRAM is now visiting the different mines with working models.

**W I L L I A M H A N N A N D S O N** beg to offer to SUPPLY COLLIERY OWNERS, and the public generally, with their

**P A T E N T S A F E T Y L A M P .**

Which has been proved INEXPLOSIVE in a current of gas of 44 feet per second. It is simple in its construction, burns well, and is in every respect a practicable lamp. It is made in two sizes, weighing 20 and 32 ozs. respectively. Price 9s. at the works; or if in quantities of a dozen or upwards, 8s. 6d. each, and delivered free. Orders received by—

WILLIAM HANN AND SON, HETTON COLLIERY, FENCE HOUSES.

ESTABLISHED 1847.

**H . S T A T H A M A N D C O M P A N Y ,** MANUFACTURERS OF EVERY DESCRIPTION OF INDIA RUBBER AND GUTTA PERCHA VALVES, &c., WASHERS, BUFFERS, HOSE PIPES, TUBING, STEAM PACKING, BELTING, BLASTING TUBE FOR NITRO-GLYCERINE POWDER, AIR AND WATER PROOF ARTICLES.

To proprietors of mines, quarries, mills, railway and steamboat companies, and all large consumers, most advantageous terms are offered.

ANY ARTICLE MADE TO SKETCH OR PATTERN.

PRICE LISTS AND SAMPLES ON APPLICATION,

11, C O R P O R A T I O N S T R E E T , M A N C H E S T E R ;

I R W E L L W O R K S , S A L F O R D .

WILTON'S MATHEMATICAL INSTRUMENT ESTABLISHMENT REMOVED from St. Day to A. JEFFERY'S, CAMBORNE.

W. H. WILTON begs to thank his friends for their very liberal support for

many years, and informs them that he has now declined business in England in favour solely of Mr. A. JEFFERY, MATHEMATICAL INSTRUMENT MAKER, CAMBORNE, whom he considers (having been an assistant to his father for several years) is in every way capable of creditably maintaining the good name universally awarded to Wilton's instruments.

A. JEFFERY

Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., that having purchased Mr. Wilton's business, and the very valuable acquisitions and appliances belonging thereto, he has enlarged his Mathematical Instrument Manufactory, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS, LEVELS, TRAVERSING and PLAIN PROTRACTORS, CASES OF DRAWING INSTRUMENTS, MEASURING CHAINS AND TAPES, ASSAYERS' SCALES and WEIGHTS, ENGINE COUNTERS, and, in short, every description of Instruments used in SURVEYING, MEASURING, MAPPING, &c.

Repairing in all its branches promptly attended to.

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CONDUCTED BY W. T. RICKARD, F.C.S., &c.

(Late MITCHELL and RICKARD).

Assays and analyses of every description of mineral and other substances manures, &c.

Gentlemen going abroad for mining purposes instructed in assaying, and the

most improved methods of reducing gold, silver, and other metals.

MINING PROPERTIES INSPECTED AND REPORTED ON.

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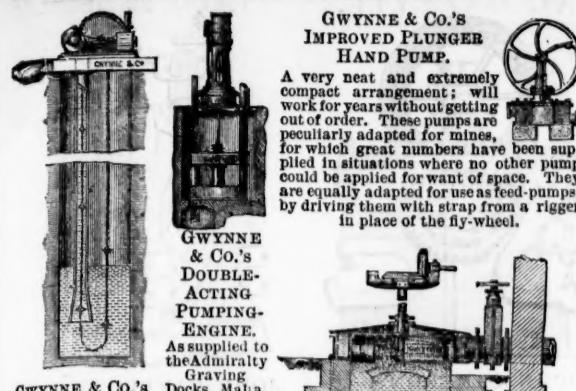
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Gwynne &amp; Co.'s IMPROVED PLUNGER HAND PUMP.

A very neat and extremely compact arrangement; will work for years without getting out of order. These pumps are peculiarly adapted for mines, for which great numbers have been supplied in situations where no other pump could be applied for want of space. They are equally adapted for use as feed-pumps, by driving them with strap from a rigger in place of the fly-wheel.

Gwynne &amp; Co.'s

DOUBLE-ACTING PUMPING-ENGINE. As supplied to the Admiralty Graving Docks, Malta, to lift from 200 to 2000 gallons per minute. The engine is of inverted

These pumps work vertical cylinders without valves or other construction, and raise a ton. The pump is a considerable quantity barrel and platen of water. They will take of gunpowder, sand, mud, or metal, and the grit without choking, while very strong and require only very strong and inexpensive repairs. compact.

ELEVEN PRIZE MEDALS, taken at the Exhibitions of the Principal Cities of the World, TESTIFY TO THE GREAT EXCELLENCE OF THIS MACHINERY.

Gwynne &amp; Co.'s IMPROVED TURBINE WATER-WHEEL.

Compact, easy to erect, economical, simple, and perfectly adapted to all situations. Made of every power from 1 to 300 horse. These turbines are adapted for every class of work. Prices on receipt of particulars.

Gwynne &amp; Co.'s PATENT COMBINED STEAM-PUMP,

As Applied to Railway Stations. The vertical boiler supplies the engine with steam, the pump discharging the water lifted from the well into the tank above, whence it may be drawn as occasion requires, for feeding locomotives, washing the carriages, as a fire-engine, &c. Estimates given.

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Light, simple in construction, durable, and economical, and very superior to "agricultural" engines. From 2½ to 30 horse power.

Gwynne &amp; Co.'s PATENT WATER POWER PUMPING MACHINERY.

Extremely useful wherever water-power is available. The centrifugal pump is worked by gear from the water-wheel. Suitable for supplying country mansions with water. No expense when once fitted. Made of all powers.

Suitable also for supplying the mansions of noblemen or gentlemen. Works continuously day and night without attention. Made from ½ to 20 horse power.

Gwynne & Co.'s IMPROVED BULLOCK OR HORSE POWER PUMPING MACHINERY.

For situations where steam, water, or wind power are not available. Portable, easy to erect, and not liable to get out of order. From 1 to 6 horse power.

Gwynne & Co.'s IMPROVED VERTICAL STEAM-ENGINE. Occupies little space, compact, safe, and easy to work. Made from the very best selected materials. Of all powers from 2 to 20 horse.



Gwynne &amp; Co.'s IMPROVED HORIZONTAL HIGH-PRESSURE STEAM-ENGINE.

With or without expansion gear, for economical working. From 4 to 100 h.p.

Gwynne & Co.'s IMPROVED DEEP WELL PUMP.

Worked direct by steam-engine at the mouth of the well. This arrangement is invaluable in situations where, from peculiar circumstances, the centrifugal pump is inapplicable.

Large and fully illustrated Catalogues sent on receipt of 12 postage stamps.

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IMMENSE SAVING OF LABOUR.

TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, MCADAM ROAD MAKERS, &c., &c.

## BLAKE'S PATENT STONE BREAKER,

OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—

The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last twelve months, and Captain Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour. For the Parys Mining Company, JAMES WILLIAMS.

H. R. Marsden, Esq.

Eton Emery Works, Manchester.—We have used Blake's patent stone breaker made by you, for the last 12 months, crushing emery, &c., and it has given every satisfaction. Some time after starting the machine a piece of the moveable jaws about 20 lbs. weight, chilled cast-iron, broke off, and was crushed in the jaws of the machine to the size fixed for crushing the emery. THOS. GOLDSWORTHY & SONS.

Alkali Works, near Wednesbury.—I at first thought the outlay too much for so simple an article, but now think it money well spent. WILLIAM HUNT.

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz. WM. DANIEL.

Our 15 by 7 in. machine has broken 4 tons of hard whinstone in 20 minutes, for fine road metal, free from dust. MESSRS. ORD AND MADDOX, Stone and Lime Merchants, Darlington.

Kirkless Hall, near Wigan.—Each of my machines breaks from 100 to 120 tons of limestone or ore per day (10 hours), at a saving of 4d. per ton. JOHN LANCASTER.

Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour. WM. G. ROBERTS.

General Fremont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate. SILAS WILLIAMS.

For circulars and testimonials, apply to—

**H. R. MARSDEN, SOHO FOUNDRY,**

MEADOW LANE, LEEDS,

ONLY MAKER IN THE UNITED KINGDOM.

### CAUTION!

## BLAKE'S PATENT STONE BREAKER, In Chancery.

**BLAKE v. ARCHER, NOVEMBER 12, 1867.**

His Honour the Vice-Chancellor Wood having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and Son, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE's, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

SOLE MAKER IN ENGLAND,

**H. R. MARSDEN, SOHO FOUNDRY, MEADOW LANE, LEEDS.**

**ISAAC STOREY AND SON,**

MAKERS OF DOMES AND OTHER FITTINGS FOR LOCOMOTIVE ENGINES, STILLS, PANS, AND GENERAL COPPER WORK,

IMPROVED WATER GAUGES, BLOW-OFF COCKS, SAFETY VALVES, FUSIBLE PLUGS, &c.

As recommended by the Steam-Boiler Associations.

GENERAL STEAM WORK, WHEEL VALVES, SLUICE VALVES, COCKS, &c.

IMPROVED GAS VALVES,

**BABBITT'S AND FENTON'S PATENT ANTI-FRICTION METALS,**

Wholesale Agents for Bourdon's, Schaeffer's, and other good Makers of

STEAM AND VACUUM GAUGES;

Richards's, McNaught's, and Hopkinson's

**STEAM ENGINE INDICATORS.**

Wrought Iron Tubes and Fittings for Steam and Gas Work.

**KNOTT MILL BRASS AND COPPER WORKS,**

LITTLE PETER STREET

MANCHESTER.

Illustrated Lists on application.

**PATENT FLEXIBLE TUBING,**

AND BRATTICE CLOTH FOR MINES

MANUFACTURED BY

**ELLIS LEVER,**

WEST GORTON WORKS, MANCHESTER.



BICKFORD'S PATENT SAFETY FUSE

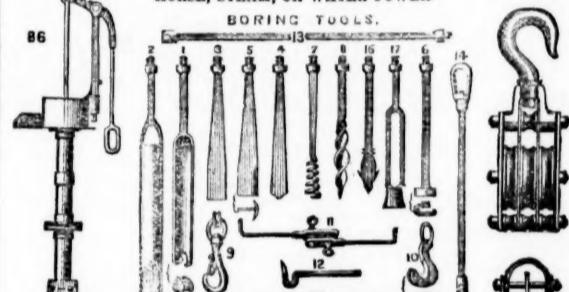
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION" held in Paris, in 1855; at the "INTERNATIONAL EXPOSITION," in Dublin, 1863; and at the "UNIVERSAL EXPOSITION," in Paris, 1867.

**BICKFORD, SMITH, AND CO.,** of TUCKINGMILL, CORNWALL, MANUFACTURERS OF PATENT SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—EVERY COIL OF FUSE MANUFACTURED BY THEM has TWO SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS AS THEIR TRADE MARK.

**S. OWENS AND CO. (LATE CLINTON AND OWENS),**

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.

HYDRAULIC AND GENERAL ENGINEERS, MANUFACTURERS OF PUMPS OF EVERY DESCRIPTION FOR HAND, HORSE, STEAM, OR WATER POWER.



BORING TOOLS OF ALL DESCRIPTIONS, for Testing Ground and for Artesian Wells.

PORTABLE, SINGLE, and DOUBLE BARREL, and other PUMPS, and PORTABLE STEAM ENGINES.

CRABS, CRANES, PULLEY BLOCKS, and HOISTING TACKLE.

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[AUG. 29, 1868.]

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## BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1500 Alderley Edge, c, Cheshire*	16 0 0.. — ..	..	10 1 8..	0 10 0..	July 1868	..	..
200 Botallack, t, c, St. Just	91 5 0.. — ..	..	488 15 0..	5 0 0..	May 1868	..	..
4000 Brookwood, c, Buckfastleigh	1 11 0.. — ..	..	0 10 0..	0 2 6..	April 1868	..	..
1000 Bronifield, t, Cardigan*	12 0 0.. — ..	..	10 1 0..	0 6 0..	Aug. 1868	..	..
5004 Bwld Consols, s-t, Cardigan	4 0 0.. — ..	..	0 5 0..	0 0 5..	June 1868	..	..
6400 Cashwell, t, Cumberl.	2 10 0.. — ..	..	0 1 6..	0 0 6..	Aug. 1868	..	..
916 Cargill, s-t, Newlyn	15 5 7.. 22 ..	21 23	14 15 0..	0 10 0..	July 1868	..	..
509 Gregbrae and Penk, t,...	6 East Bassett, £1 15s.	..	2 5 0..	0 5 0..	May 1868	..	..
867 Gwyr Erbin, t, Cardiganshire*	7 10 0.. — ..	..	28 8 0..	0 15 0..	July 1868	..	..
128 Gwynnstwith, t, Cardiganshire	60 0 0.. — ..	..	381 10 0..	2 0 0..	Dec. 1867	..	..
280 Hayton Mines, t, Durham	300 0 0.. — ..	..	117 0 0..	0 10 0..	July 1868	..	..
1024 Devon Gt. Consols, c, Tavistock	1 0 0.. 425 ..	415 425	1109 0 0..	7 0 0..	July 1868	..	..
656 Ding Dong, t, Guitav.	49 14 6.. 15 ..	..	0 10 0..	0 10 0..	Sept. 1867	..	..
500 Dolcoath, c, Camborne	128 17 6..	..	852 14 0..	4 0 0..	Aug. 1868	..	..
614 East Caradon, c, St. Cleer*	2 14 6.. 2 1/2 ..	2 1/2 2%	14 11 6..	0 2 0..	July 1868	..	..
300 East Darren, t, Cardigan*	32 0 0.. — ..	..	10 10 0..	0 5 0..	Aug. 1868	..	..
1000 East Wheal Bassett, t, Wendron	25 0 0.. — ..	..	10 10 0..	0 5 0..	April 1868	..	..
6000 Foddale, t, Isle of Man	5 0 0.. 40 ..	39 41	49 10 0..	1 10 0..	June 1868	..	..
6000 Frontino, t, Calstock	5 10 0.. — ..	..	0 10 0..	0 5 0..	April 1868	..	..
11500 Great Levant, t, St. Just	10 8 0.. — ..	..	1095 0 0..	2 0 0..	July 1868	..	..
4000 Gwyrton, t, Cardiganshire	18 15 0.. — ..	..	507 10 0..	3 0 0..	May 1868	..	..
3000 Mace-y-Saint, t, Flint*	20 0 0.. — ..	..	3 15 0..	0 15 0..	April 1868	..	..
3000 Marke Valley, t, Cardigan	4 10 0.. — ..	..	502 10 0..	0 6 0..	July 1868	..	..
3000 Minera Mining Co., t, Wrexham*	1 0 0.. — ..	..	0 13 0..	0 8 0..	Mar. 1868	..	..
2500 Minera Co. of Ireland, t, c,...	25 0 0.. 160 ..	165 175	239 13 0..	13 0 0..	Aug. 1868	..	..
5000 Mwyndy Iron Ore Co., t,...	3 0 0.. — ..	..	0 8 0..	0 2 0..	July 1868	..	..
2000 Parva Mines, c, Anglesey	50 0 0.. — ..	..	163 0 0..	2 0 0..	Mar. 1868	..	..
12500 Prince of Wales, t, Calstock	0 12 0.. — ..	..	0 7 0..	0 1 0..	Aug. 1868	..	..
11200 Providence, t, Uny Lelant	10 6 0						